

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

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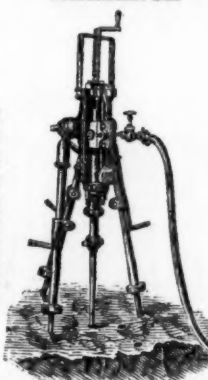
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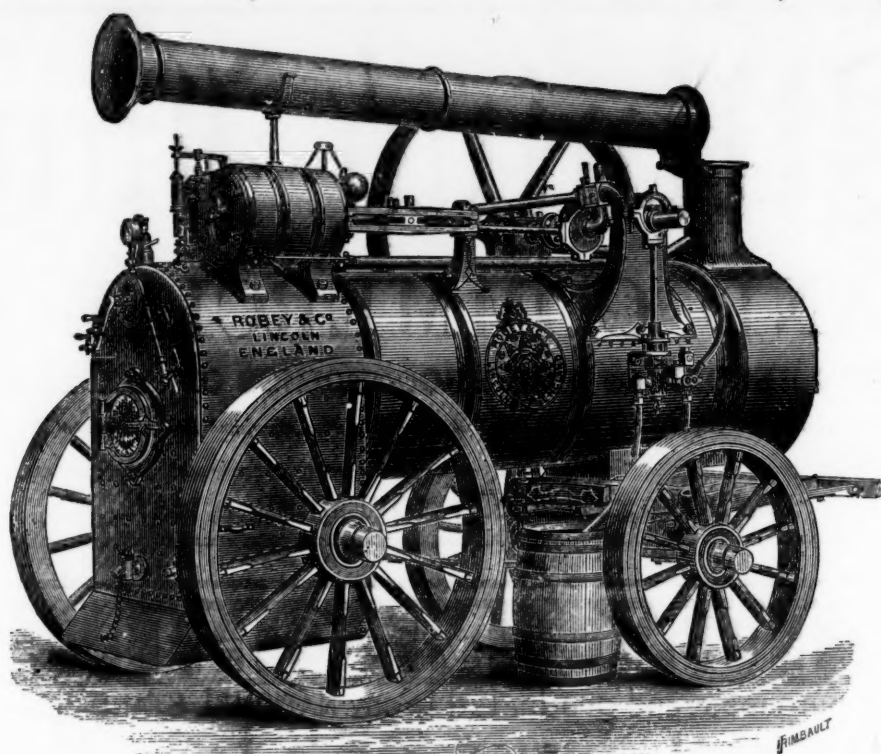
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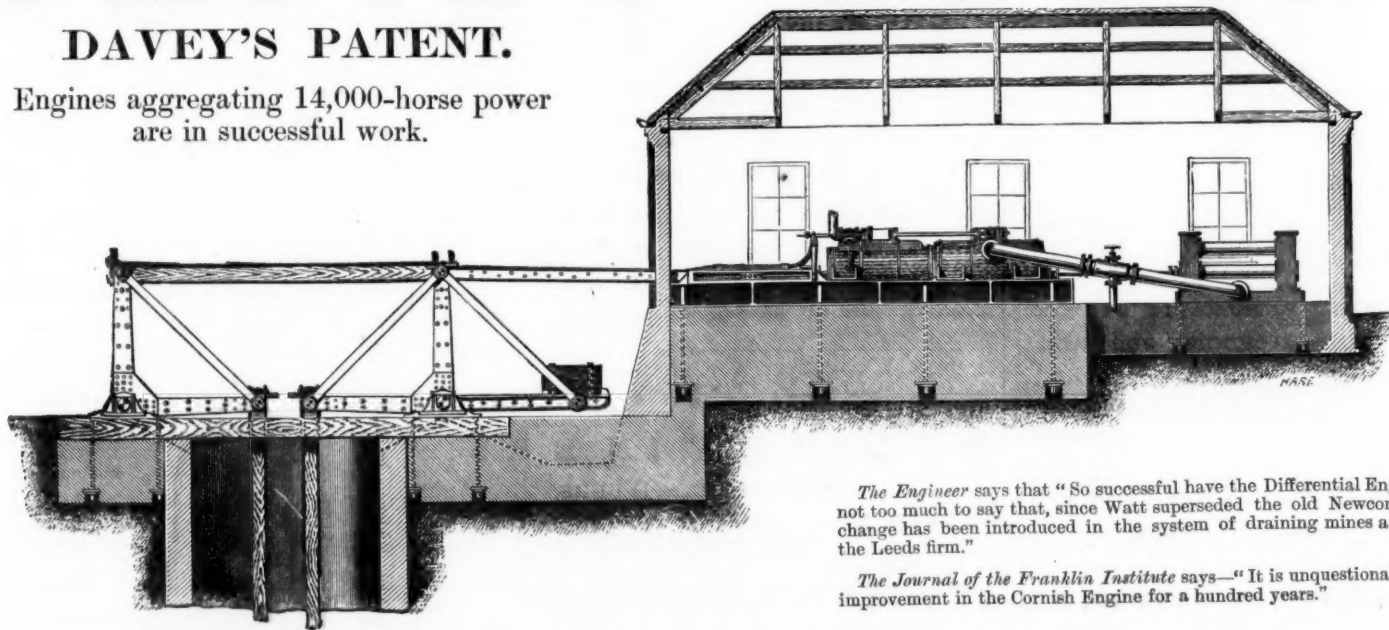
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Original Correspondence.

SAFETY-FUSES.

SIR,—In your description of the exhibits of the Cornwall Mining Institute, last week, attention is directed to Messrs. Bickford, Smith, and Co.'s display of safety-fuses. Allow me to say that what you characterise as a "special feature" and a "new arrangement" for simultaneous blasting was devised by myself and successful experiments made with it more than 12 months ago, but discarded for the safer and more reliable electric fuse. An accidental spark of fire igniting the fuse in question would mean in most cases instantaneous destruction of the miner, because the detonating substance they are charged with is no sooner touched than the explosion occurs. It would be more appropriate to label it "highly dangerous" than "safety-fuse." Besides, the lavish waste of fuse in connecting holes—in some instances 5 or 6 ft. apart—and bringing them to one common centre will help to preclude its general adoption. I can speak with some authority on the subject after years of close practical experience, and I have no hesitation in saying that for absolute safety and dependence no method of blasting yet invented can compare with electricity, nor any machine to be used in connection with it so simple, effective, and durable as Bornhardt's.

Reference is also made to a "new and simple" arrangement for lengthening bucket rods, by Capt. J. Nicholls, of Violet Seaton. Those who have visited our mine will probably recollect my drawing their attention to what appears, from your description, to be almost a facsimile in some particulars of that employed by Capt. Nicholls. There is evidently a duality sometimes in original ideas.

Rushen Mine, Isle of Man, Nov. 4.

JOHN BARKELL.

THE NEW TRAMWAY ENGINE.

SIR,—In your Correspondent's report of our Tramway Engine, in last week's Journal, we notice a very serious error in the consumption of coke, which is put at 12 cwt., instead of 4 cwt., for the 12 working hours. Will you kindly note this in your next Journal, and oblige—

Gatehead-on-Tyne, Nov. 6.

BLACK, HAWTHORN, AND CO.

ELECTRIC WRITING TELEGRAPHS.

SIR,—In noticing one of the Conversazioni of the Institution of Civil Engineers in the *Mining Journal*, reference was made to the writing telegraph exhibited by Mr. E. A. Cowper, of Great George-street, the essential feature of which was that the message was transmitted in the sender's own handwriting, but as no details were given as to the mode by which the transmission was effected it may be interesting to give Mr. Cowper's own statement. According to his original arrangement the movements of a pen or style at the sending station were caused to introduce varying resistance into two electric circuits connected with the receiving station, so that the varying currents in acting upon two electro-magnets at the latter station caused these to impart movements in two directions at an angle to each other to the receiving pen or style, whereby this was made to reproduce the writing or characters produced by the sending pen. According to his latest arrangement instead of making the movements of the style or pen introduce varying resistance into the line circuit he causes them to produce greater or less strength of current by bringing into the circuit a greater or less number of battery cells or parts thereof. Or, instead of employing the direct currents from the batteries or other sources of electricity, he employs for the line circuit induced currents varied in strength by the movements of the style or pen, for which purpose it may be connected to iron cores sliding longitudinally within solenoids or to solenoids sliding over fixed cores. The variation in the strength of currents sent into the line circuit may also be effected by combining various numbers of battery cells with various resistances in the following manner. The contact bars worked by the sending pen or style, besides passing over successive plates connected through varying resistances to the line wire, also pass over successive plates respectively connected to various numbers of battery cells, these two sets of plates being so arranged that at the one extreme of its stroke the contact bar makes connection from the smallest number of cells to the greatest resistance, and conversely. Each contact bar may be made to slide in guides and have two projections on its under side, one sliding over a set of contact plates connected to the resistance coils, and the other projection sliding over a set of contact plates connected to the battery cells, and the pencil being connected to each by a connecting rod, so that as the operator writes battery cells are added and resistance coils left out of the circuit when greater power is wanted; or battery cells are left out and resistance coils are taken into the circuit when less power is wanted.

Instead of the arrangement used under his former patent, Mr. Cowper now employs a single movable soft iron bar tube, or needle, which is connected directly to and is in line with or parallel to the pen or style, being suspended between two fixed electro-magnets or two sets of such magnets situated at a right or other angle to each other, through the coils of which electro-magnets the varying currents of the two circuits are made to pass. The needle being connected to two springs acting upon it in opposite directions to those in which the two sets of magnets act upon it, it will be seen that varying currents passing through the one magnet or set of magnets will produce varying movements in the one direction in the needle, while the varying currents passed through the other magnet or set of magnets will produce varying motions in the other direction at a right or other angle to the first, and these motions being imparted directly to the pen or style will cause this to reproduce the characters written by the sending pen. The suspension of the needle so as to enable it to move in every direction may either be effected by resting it on a point or on a universal joint at any part of its length, or it may be suspended from a spring or from a flexible thread or wire. It may be either rigidly fixed to the pen or style, or the latter may be supported independently of the needle and be so connected thereto that the pen is caused to reproduce the motions of the needle in a more or less magnified manner. In order to render the cores of the fixed electro-magnets as sensitive as possible to slight variations in the current, he makes them of bundles of fine wires or thin plates in a manner well known. Instead of employing a separate needle or separate needles to which the pen is connected the pen itself may be pivoted or suspended vertically over the paper and have fixed on it a piece of iron exposed to the varying attraction of electro-magnets in the two directions acting in opposition to springs pulling it in the opposite directions. The elasticity of the pen itself or the needle which carries it may serve instead of such springs.

It necessarily requires some little practise to use the sending style as readily as an ordinary pen or pencil, but in order that the pen when it is pivoted may more easily traverse the surface of the paper it is of advantage to give the paper at the place where the pen moves over it a concave form coinciding nearly with the circular path in which the point of the pen moves round its pivot. For this purpose he passes the paper under a bent plate with a hole through it of sufficient size to allow of the largest excursions of the pen, the bend of the plate giving the paper a certain amount of concave curvature at the place where the pen moves over it. In order to secure the pen to the rods, strings, needle, or bar which gives it motion he inserts its lower end in a light spring clip, so that it can be readily withdrawn therefrom when required, but is firmly held thereby when in use. This clip may be made as a hole or slot in a light spring admitting of a small amount of vertical motion so as to allow the pen to give to inequalities of the paper. According to another improvement which has for its object to raise the pen when it ceases to write, he applies to the pen a spring acted on by an electro-magnet or magnets through the coils of which the currents of the two circuits are made to pass, so that on the passing of such currents the pen is allowed to descend by the action of the electro-magnets in opposition to the spring so as to come in contact with the paper strip, while when the currents are caused to cease by raising the sending pen on the completion of the word or character transmitted the spring raises the pen out of contact with the paper, thereby causing each word or character transmitted to be written separate from the other or others adjoining it, as in ordinary writing. In place of raising and lowering the pen for the above described pur-

pose the surface over which the paper strip travels may be made to rise and fall slightly together with the paper by the action of the electro-magnet and spring. There are, of course, some details which cannot be described without reference to drawings, but this will probably make the nature of the invention sufficiently clear.

Westminster, Oct. 28.

H. J. C.

ROCK DRILLS—TRIAL IN CORNWALL.

SIR,—With respect to the trials held at Wheal Agar of rock-drilling machines, nothing could well be more misleading than the results obtained and the comparisons set up. It was certainly somewhat surprising that three men at ordinary hand labour should be able to beat machines using as much as 6-horse power, as in point of fact they did when the time for fixing is taken into account, though certainly the hand hole was much smaller, but this result leads many who do not look at all sides of the question to depreciate the advantages of substituting machines for hand labour to effect this work of boring for blasting purposes. The fair comparison, however, is not with a result of boring for five minutes (during which time the men exerted themselves so intensely to beat the machines that their efforts resembled a wonderful feat of skill and strength similar to that shown in a short distance race), but with every-day piece-work, when men work as hard as they can keep up, to earn the best possible living.

Now, I have statistics of the average rate of hand boring in most rocks, and in the stone bored at the trial at Wheal Agar the usual rate is at most 8 in. to 9 in. per hour, instead of 13 in. in six minutes, the rate bored by hand at the Wheal Agar trial; and compared with the former average rate, the drilling powers of even Jordan's hand machine, with 2-men power, was of course immensely favourable. It is to be hoped that these short competition trials between the machines and manual labour will not be repeated, since their only tendency is to increase the opposition of the men to machines, which must be eventually generally adopted in this country, if its mine development is to keep pace with the rest of the world.

London, Nov. 5.

MINER.

THE DARLINGTON BORING MACHINE.

SIR,—As surprise almost amounting to doubt has been expressed at the results obtained at the Ballacorkish Mine with one Darlington drill, I give the result of eleven weeks running on the 60 fm. level, the forebreast of which is advanced about 250 fms. north of the engine-shaft. Rock: hard tough greenstone, quartz bands, and clay-slate. Number of miners employed, 6. Length driven, 114 yards; average length driven per week of six days, 11 yards 1 ft. 2 in.; average length driven per day, 5 ft. 9 in. Total number of holes bored, 1161. Number of feet drilled, 4817. Average depth of each hole, 50 in. I venture to think that no such speed as nearly a fathom a day in hard, short, cross-grained ground has been attained elsewhere, with a single machine drill, and only two men to do the entire work of the shift, and that the facts are deserving of a notice in your paper. According to the ordinary way of calculating the speed as consequent on the number of drills employed, the Ballacorkish result with one drill, multiplied by four machines, would be at the rate of 185 yards monthly. The drill itself which has done the work, and which was made at the Sandycroft Foundry, is, I understand, in excellent condition, ever ready from its strength and simplicity to do its work, quick in its action and, under a moderate pressure of air, developing an intensely sharp blow. To Capt. Barkell is due the exclusive merit of organising the work and handling the drill.

London, Nov. 1.

FREDK. J. KING.

HULL, BARNSLEY, AND WEST RIDING JUNCTION RAILWAY COMPANY.

SIR,—The outcome of the meeting held in Barnsley, on Tuesday, Oct. 28, was a resolution to place Hull on an equality with Tyne ports by a railway as above, combined with a new dock for coal shipments. It is contrary to my nature to imagine that the gallant (Hull) colonel leading on this movement is capable of false pretences in pushing forward this scheme, as I am not aware that the one or two coalowners residing in Hull are capable of giving him correct information on the subject.

That the inland coalowners may acquire a knowledge which they do not seem to possess, permit me to state that the latest improved Tyne mode of shipping coals for the Thames is the eschewing of all dock accommodation. The gas coal steamers of the last improved type load in the stream, which liberates them from immense detention in waiting to enter and depart, and thread their way in and out through a crowded dock, besides dock dues. I defy the promoters, or any other parties, to equal the Tyne ports without creating deep-water (always accessible) shipping berths outside the docks on Hull foreshore. To put forward any statement that Hull without such is on an equality with Tyne for dispatch in coal shipments is a delusion, a snare, and, to avoid any word *mal-sonnant*, not correct. I warn the coalowners from making themselves responsible for a single copper coin, as there is not the least chance for such a Bill being conceded. My *locus standi* alone, as promoter of water transport to London, is sufficient to condemn any railway from Barnsley to Hull, without any opposition from existing railways. The eminent banker will do well to relinquish all further action in this matter, as it will most assuredly culminate in his discomfiture. Let him have recourse to more experienced and notable coalowners than the one or two that are to be found at Hull for accurate information as to the Tyne. I called at Lombard-street to seek for an interview, but the colonel was not in town. I shall be glad to repeat my visit, to disabuse him of such incorrect information, if agreeable, my object being for the Yorkshire, Derbyshire, and Notts coal to monopolise the London coal supply.—*Little Tower-street, Nov. 5.*

WM. JOSEPH THOMPSON.

IMPROVED METALLIC TILES.

SIR,—As very many enquiries have been made through the *Mining Journal* with regard to the manufacture of patent tiles to be substituted for the heavier material now in use, it may be of interest to some to know the details of the invention of Mr. T. H. Rees, of Westminster Bridge-road. He takes sheets of metal—such as tin, tinned iron, zinc, brass, copper, &c., but by preference sheets of tin or tinned iron, as being the cheapest and the most durable, and he varnishes or japans these sheets on the one side to protect the metal from oxidation—this forms the back or wrong side of the metal tile or metal veneer; the other side he covers with white or coloured enamel. This enamel, the base of which should be oxide of zinc, may be laid on with a brush, roller, or other instrument; but as in the ordinary methods it is very difficult to obtain a smooth and even surface he prefers the following process, and claims it as his invention, and as being an improvement upon the methods hitherto adopted.

After spreading the enamel or paint over the surface of the metal sheet he places it in a gentle stove or warm room until the enamel is set, but not long enough to dry it; then before it is dry he brushes or dusts the surface over with French chalk, china-clay, whitening, or any fine white powder that prevents adhesion, but prefers French chalk, and having on the bed of a lithographic or other suitable press, or on the bed of a lithographic machine, a smooth stone slab, such as an ordinary lithographic stone, he places the dusted enamelled sheets with the enamelled face down upon the smooth stone, and passes it through the press or machine in the ordinary way, and the face is pressed hard and smooth; the sheets are then dried in stoves or warm rooms. Where the white dusting powder is objectionable, as in the case of coloured enamels, he damps the face of the lithographic stone, and uses no powder. After the sheets are enamelled as herein described suitable tile or other patterns are printed upon them by the usual printing process. He prefers the lithographic process, and when the work is quite dry the sheets are varnished with clear transparent varnish, and dried in hot stoves or rooms.

The sheets of metal prepared as herein described will present the appearance of encaustic or earthenware tiles, and they may be fastened to walls, ceilings, &c., with small pins or screws, or they can be made to adhere with a suitable cement. To some of these metal tiles he puts an indented flange, so that in joining them together to cover walls, &c., they will lap over and present a perfectly even surface. By the same process he also makes ornamental borders to form dados, panels, cornices, borders, and flower-box points. The metal

tiles and veneers may be joined edge to edge, or edge lapping over edge, or with the edge lapping over, but sunk in the flange as above described. These metal tiles can be bent into angles or round corners, the metal and the enamel being both flexible, and the metal sheets are thin and soft enough to be able to be cut into shape with a common scissors. That metallic tiles would be both cheap and elegant is beyond question, and if care be taken to protect the iron by the coating they would be the most durable material that could be used.

Nov. 4.

METALLUM MARTIS.

THE PROSPECTS OF THE COPPER TRADE.

SIR,—For many months past the articles in the Journal about copper have evidently been written by a disappointed man, who, perhaps, found himself in a similar position to that of the fox and the grapes—i.e., he missed the chance of buying copper when about 12½ per ton below present prices. At any rate, when Chili bars were worth only 53½ to 54½ per ton, your articles predicted further important declines in values, and whoever reads the article in your issue of Nov. 1 cannot help pitying the poor unfortunate creatures whom the unscrupulous brokers have put into copper now. Feeling, however, that your only desire is to give your readers the fair state of the markets, I rely on your impartiality to publish the following remarks in contradiction to the article referred to above.

1. The writer states that the rise in prices is stopping the legitimate demand. How can that be the case when the deliveries of all sorts of copper during the last month exceed 8000 tons, which is the largest total but one in the annals of the trade.

2. The writer states that there was nothing in the statistical position of copper to attract attention. The statistics, however, have much improved since Sept. 1, when the rise first began, as the following figures will show:—

Actual stocks in Europe Sept. 1	Tons	43,245
" " Nov. 1		38,723
Decrease		4,522
Stocks in Europe and afloat for Europe Sept. 1		59,149
" " Nov. 1		55,658
Decrease		3,491
Stocks of precipitate, &c., in England, not included in the above figures, Sept. 1		2,000
Ditto ditto Nov. 1		660
Decrease		1,340

The writer refers to the statistics of Oct. 1, 1877, which are stated correctly as 40,523 tons, but at that time the stocks in Chili, which have since been shipped to Europe, were 12,000 tons, thus raising the quantity to 52,523 tons, or only 3000 tons less than now; further, at that date it was well known that there existed very large stocks, not included in the statistics, in the hands of two European producers, estimated at 6000 to 7000 tons, whilst there is scarcely any copper held by them now. These are well known and well authenticated facts.

With regard to the increased production of the Rio Tinto Company, it is more than counteracted by the reduction in the make of the Wallaroo Company (say about 3000 tons per annum), and by the total extinction of the Peak Downs Mine in Queensland.

Now I come to a point which the writer has not touched—that for the last three years the United States of America had sent from 600 to 700 tons of copper per month to Europe, but what is the case now? The price in New York for Lake Superior copper is equal to about 102½ per ton, and about 600 tons of Lake copper have been reshipped from Europe to the States, in addition to some Chili bars and English best selected.

Trade is reviving everywhere; and the present price of copper—65½ to 66½ per ton for Chili bars—is still exceedingly low (for copper never before ruled below 68½, except during the last 12 months, and during the Franco-Prussian war in 1870), and the general opinion in the metal trade is that prices will soon rule much higher.

As to the Cambrian Mines, "sufficient unto the day is the evil thereof," and not a single ton of copper from that source has been sold yet, nor are the following figures, showing the decrease of the production in England since 1857, likely to encourage your readers to "bull" the Cambrian shares.

PRODUCTION OF COPPER IN ENGLAND.

1857	Tons	17,374	1868	Tons	9,817
1858		14,456	1869		8,291
1859		15,770	1870		7,175
1860		15,968	1871		6,280
1861		15,331	1872		5,703
1862		14,843	1873		5,240
1863		14,247	1874		4,981
1864		13,302	1875		4,322
1865		11,888	1876		4,694
1866		11,153	1877		4,500
1867		10,233	1878		3,952

ERNEST HAWKINS,

Lombard-Street, Nov. 6.

Sworn Metal Broker.

TREATMENT OF TIN ORES.

SIR,—I am glad to see Mr. Nance has apologised, and I accept the same with this remark, that I do not consider myself bound while replying to one person to read the productions of another, and as Mr. Nance undertook to describe my machinery he must, according to his own showing, have known my system so far as at present worked out was not his classifier and separator, which it appears is an untried one, and I fear the two operations cannot be effected by the same apparatus, and at the same time. I notice Mr. Nance declines my offer to compete, and, therefore, I must see how I can deal with tin with my patented system, and if Mr. Nance will write me I will furnish him with my specification, so that he may see how far his separator agrees with mine, which, like his, is yet untried.

Aberystwith, Nov. 5.

GEORGE GREEN.

PANULCILLO COPPER—A PROPERTY.

SIR,—This company has now completely emerged from all its difficulties, and may now be classed amongst the best and largest foreign dividend-paying copper mines held by an English proprietary. The accounts for the year ending June 30 last show a profit of 17,528½, after paying 4860½ interest on the debenture debt, &c. These two sums together represent a profit of 22,388½—a trifle short of 11½ per cent. per annum on 4½, the par value of the shares—and this profit has been made with copper ranging at and below 57½ 10s. per ton, being 8½ to 10½ per ton below the present market price of Chili bars. At the meeting on the 4th inst. the Chairman stated the debenture debt had been reduced to 19,300½, and the profit for four months—from July 1 to October 31—was telegraphed from Chili as 13,500½, or at the rate of 40,500½ per annum, and that this profit had been obtained on the low rates of copper recently current, and not from the recent advance of 8½ or 10½ per ton, the benefit of which would only be obtained in the future.

The company's make of regulus is equal to 2828 tons of copper per annum, therefore it is quite clear if the present price of copper is maintained the future profit must amount to at least 60,000½ per annum. The capital of the company is 200,000½, in 50,000 shares of 4½ each, and the latter are selling at the absurdly low price of 3½ per share, although the profits made during the past four months are equal to 20 per cent. per annum, and the current profits may be fairly estimated at about 30 per cent. per annum. The Chairman stated at the meeting that the directors would shortly declare an interim dividend; this I think cannot be less than 8s. per share, or 10 per cent. on the par value, as by the end of the year the half-year realised profit cannot be less than 25,000½, and only 20,000½ are required to pay a 10 per cent. dividend. I quite expect this dividend will be paid about April next, as by the middle of March the accounts to Dec. 31, and a remittance of the profit for the half-year, will have arrived in this country. It is, therefore, apparent the present price of the shares—3½—is absurdly low, and that they must ere long advance to their old price—6½ or 7½ per share.

I may add that the mines were never so full of reserves at at pre-

sent; the estimate of the ore laid open at June 30 last being 1,000,000 quintals, as against 800,000 quintals on June 30, 1878, being an increase of 25 per cent., the total reserves being equal to 2½ years' raisings of ore, so there is no immediate fear of the yield of ore being diminished.—Nov. 7. A SHAREHOLDER.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—I notice in your last week's Journal a letter signed "Lawyer," who makes the self-satisfied assertion "You are well aware how closely I watch the affairs of this company, and that I have access to authentic sources of information." There is not the slightest doubt that he does closely watch the affairs of the company, especially if he hopes to bring about its liquidation. He, moreover, even claims credit "for the accuracy of the information he has been allowed to give the shareholders through the medium of your columns."

Now, I am not aware that "Lawyer" or anyone else, excepting the directors and myself, have given any information to the shareholders which can or will in any way benefit their position, or in any sense be looked upon as reliable, and if "Lawyer" and Mr. Pearson are so anxious to be thought the friends of the share and debenture holders, it occurs to me that neither the one or the other is adopting a politic course; in fact if the share and debenture holders knew as much about "Lawyer" as I do I very much doubt whether they would not consider him in a totally different light to that of a friend. It would, I know, greatly please both Mr. Pearson and "Lawyer" should the Stock Exchange direct that the name "Flagstaff" be struck from the official list, but so long as that company is in existence, and the shares have a marketable value, the Stock Exchange Committee no doubt consider it but right that the "Flagstaff" should still be officially quoted. But that is not a question for "Lawyer" to trouble himself about.

You may remember that as far back as June last I notified to you the result of the appeal to the United States Supreme Court at Washington, and that the decision had been given against the company, and I also sent you a full copy of the said decision of the Court for the information of the mining community; but it would occupy too much of your valuable space to now repeat in detail all particulars respecting that unfortunate decision. It does not require the "positive assertion" of "Lawyer" to point out by what means the company was deprived of the 100 ft. or whatever property was left the company after the decision was given—that is well known; but he should have stated (as he must be aware of it) the manner in which the judgment creditor obtained possession of the property; and when he states that the owners of the various locations have formed a new company, which is now, and has for some months past, been working and developing the mine, he is travelling on of the direct course, and making a statement which he cannot "positively assert" to be true.

If "Lawyer" really desires to befriend the shareholders by affording them information he should confine himself to facts, and not launch out with such extraordinary language as that contained in the second paragraph of his letter. It is quite clear to me that he is not conversant with all the affairs of the company, otherwise he could not make such assertions. I, as secretary of the Flagstaff Company—an appointment I have held for over five years—duly inform the shareholders upon important matters, and fully reply to all enquiries, and can positively affirm that I have received only two letters within the past six months from shareholders respecting a general meeting, and my replies have satisfied them that the course being pursued by the directors is the proper one to be adopted.

The directors have taken counsel's opinion as to the further issue of debentures, and not even the smallest debenture is permitted to be issued until the full state of the company's affairs, its loss of property, &c., has been fully given. "Lawyer" is here again labouring under an error. Whether or not the directors have neglected their duty is not in the province of "Lawyer," but this I can say no man could have worked harder in the interests of the share and debenture holders than Prof. Vincent, the Chairman of the company, and it is mainly through his continuous and laborious efforts that the company has been kept together to the present time.

The whole pith of "Lawyer's" letter seems to point to "wind up." He appears, to my thinking, to be rather too forward with his opinion as to what the Court will direct (even in case the petitions were to come on for hearing), but allow me to remind him that it is not the general interest of the public, but the joint interests of the share and debenture holders which should be consulted in the matter, and from the larger numbers of both whom the Chairman and myself have had personal interviews with this course is the one farthest from their wishes.

I cannot close without also alluding to a paragraph in last week's Journal, in which your correspondent, evidently working in the same groove as "Lawyer," and with a similar object, makes the reckless assertion that "Several petitions connected with this company will come before the Courts during the term now about to commence." I should not be doing my duty as secretary of the company did I not give an unqualified denial to such a statement. The paragraph also again refers to the everlasting proposals "now ready in Mr. Pearson's hands" to be laid before the shareholders.

Now, Sir, as regards the first of these statements, your correspondent (who is evidently an advocate of Mr. Pearson's), has been very unguarded in referring to petitions at all, and he would have the shareholders believe there is a host of them. I will give you the facts. Over 18 months ago two petitions were presented to wind-up the company, one of which, the largest, was presented at the instance of Mr. Ellis Pearson himself, in respect of a claim of his which the directors felt bound to resist, and which he assigned to a Mr. Ruffe (called Ruffe's petition), for the purpose of filing a petition to wind-up the company. The other petition is for a comparatively small amount. These are the only two petitions which have troubled the company during the whole of that time, and there are no others on the file. With respect to the said proposals, I will now state that both in my official capacity as secretary of the company, and also in my private capacity as a share and debenture holder, I have repeatedly made written application to Mr. Pearson for informing respecting same, but always with a like result, he declining to afford me any satisfaction whatever.

As to the great value of the Flagstaff Mine, there is but one prevailing opinion; and regarding the steps now in progress, I have no doubt that in the end all parties concerned will be highly satisfied.

London, Nov. 6.

A. A. DE METZ.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—Since writing you I have the gratification to announce that a satisfactory and final settlement has been arrived at respecting both the petitions alluded to in my former letter, and that thus the cloud which has hung over the company for the last eighteen months in the Rolls Court has completely passed away. I hope you will be good enough to find space for this additional paragraph, as it will, no doubt, be received as equally satisfactory and important by the body of shareholders at large.

London, Nov. 7.

A. A. DE METZ, Secretary.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—In last week's Journal appears a letter signed "Lawyer," which latter represents himself as keeping a close look-out over the affairs of this company, for, as he would have us believe, the good of the shareholders. A very pretty picture that; a lawyer not the solicitor of the company keeping a friendly eye, &c. How we are reminded of the friendly wolf turning his kindly eye on the gentle lamb! "Lawyer" alludes to the board in disparaging terms. Two of the directors, he practically says, do not interest themselves in the affairs of the company, while the third he terms an active director, who travels among the stockholders, &c.

Now, as regards the board, I think it has been a wise economy to keep it reduced to three, the lowest number allowed by the Articles; they are all in my opinion excellent gentlemen, in whom the shareholders have ample reason to be well satisfied. As for the Chairman, Prof. Vincent, I have had the pleasure of his acquaintance for many years, and not only can I speak of his practical qualification for the position he holds, but I will give it as my own conviction that had it not been for his prodigious efforts to save the company it

would have been wound up long ago. I now repeat the advice I gave the stockholders through your columns some months ago to place complete trust in their directors and committee in their continued efforts in our interest. If they do this I am quite convinced the future will justify such confidence.

London, Nov. 6.

A LARGE SHAREHOLDER.

FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—I desire to avail myself of the *Mining Journal* to give a most emphatic contradiction to the statement of the secretary, Mr. De Metz, in your last number, that "I had asserted for the last six or eight months that I was empowered to deal with the property, but had refused upon applications to confirm the statement by the production of documents, or verbally mention any price or terms," &c. Months ago, Sir, I showed to Mr. De Metz the authority of the attorney then representing the proposed vendors, and subsequently I not merely showed, but discussed with him, the terms upon which the vendors or present holders of the properties were willing to transfer the mines to a new company. These terms were embodied in a document prepared by the vendors, and I allowed Mr. De Metz to take it away for a few hours, that he might make his own marginal notes upon it. He did so, and I have the document marked in his own handwriting. Apart from the evidence of those who were present at that discussion, I think the secretary's own handwriting is conclusive proof of the truth of my assertion. I will show the document to any gentleman who may desire to form a correct opinion as to the secretary's veracity.

Let me point out to your readers that the secretary is not content merely to make this misstatement, but proceeds to draw the inference that the directors would not have been justified in calling the shareholders together, because they had not received from me any information as to the terms on which the mine could be purchased. Now, the shareholders ought to have been called together to learn from the directors how it has come about that, as you express it, "they and their property have parted company." The directors—practically there is but one—have nothing to do with the proposed purchase of the mines. As representatives of the company they must not have anything to do with it, unless, indeed, the shareholders should think it desirable to acquire the property, and with it the whole mass of indebtedness that has always proved too heavy for them or their lessee. Some weeks ago I invited the directors, as individuals, to attend a meeting at my office to hear an explanation of the terms on which the present holders would sell. Mr. Vincent kept resolutely out of the way. The vendors, who for months past have been in exclusive possession of the mines, and have been working the same without the slightest regard to the Flagstaff Company, and who, in fact, are amused at there being such a company—a mining company, as your correspondent says, without a mine—have expressed the strongest objection to Mr. Vincent's being in any way associated with the new concern.

To my knowledge the directors have been fully advised as to the main facts—that the company by the decision at Washington was pronounced to have no holding on the lode beyond 100 feet square, and that that 100 feet square had passed to the assignee of a judgment creditor, and the secretary himself in a letter in the *Journal* of October 25 states that "the title" had been "affirmed," as he ludicrously expresses it, in the hands of that judgment creditor. As I write I am told the shares are being bought and sold at 30s.; and, Sir, I agree with you in regarding transactions in shares of a company when "there has long been a total absence of assets, and not even a property to litigate about," as incomprehensible. I suppose there is a "game" on, and somebody has sold more shares than can be delivered, and has consequently got "cornered;" but to me, who by the last mails know the views, and have the instructions, of the owners of these mines, these operations would be a source of amusement if it were not that they hinder the real business which waits to be transacted. In conclusion, I desire to say that I have advised a compromise of the petitions and action so long pending against the company, and my advice has been accepted. I have done this because I agree in opinion with many shareholders who have urged the expediency of avoiding a compulsory liquidation, and of postponing a winding-up to a time of our own selection.

E. PEARSON.

Great Winchester-street, E.C.

MINING IN NEVADA.

SIR,—If Virginia City, Nevada, can boast of its Mount Davidson, and of the wonderful ore channel—the Comstock lode—trending down deep beneath its giant shadows, so we are able to boast at Como of our Mount Lincoln, which is 540 ft. higher than Mount Davidson and the Como lode; we have thus a reasonable expectation of the permanency and reliability of metal-bearing lodes. The topographical, geological, and lithological structure of the country in this vicinity is the same as on the Comstock lode. In a country like Nevada, where the surface is everywhere distorted and corrugated by tremendous eruptive forces, vast sums of money might be saved, and innumerable disastrous failures might be avoided by simply noting the trend and position of the volcanic dykes and the eruptive ridges which are unquestionably the direct cause of the faults, defects, and other perplexing disturbances so frequently encountered in the quartz veins of the great basins of this State. If a miner can ascertain with reasonable certainty the source of a local disturbance or fault in the quartz vein he may frequently succeed in regaining an apparently lost lode, and save from abandonment an extremely valuable property or district.

The Como lode, which has been worked, and shares of several companies sold in the Stock Market from 1860 to 1864, shows to-day the way mining was performed in those days; there are hundreds of tunnels like the old Wagram tunnel, which I have cleaned out to ascertain the old workings. A French company started in the spring of 1860 to run an open-cut 300 ft. in length, thence a tunnel 75 ft. to cut the ledge at a depth of 10 ft. below the surface, then went 24 ft. behind the footwall, turned off to the right, 36 ft. parallel with the ledge, then turned to the right towards the ledge again 24 ft., and along the ledge back to the starting point. Such have been the workings all over the whole district. Only last summer people started sinking shafts to a depth sufficient to ascertain brilliant results—the Eureka shaft, at a depth of 75 ft., has a ledge 16 ft. in width, and assays on an average \$52 to the ton; the Chieftain shaft, at a depth of 200 ft., has ores assaying \$66; the West Rapid shaft, at a depth of 200 ft., has assayed ores of \$336. The Sunrise, Consolidated Como, Como, and Ceresus Mines are on the same lode and of equal richness.

The Como mining district rests upon an elevated plateau, 800 ft. higher than Virginia City, at a point about 20 miles south-east from Virginia City; the road is a good one, having from Dayton an easy regular grade all the way to the summit, but the dismal black walls of basalt and the fantastic pyramids of scoria and other volcanic vestiges which flank the way on either side are neither picturesque nor encouraging. Upon emerging from this plutonic chasm into the bright sunlight and pure air of the elevated mesa, the scene is one of enchanting grandeur, away to the north-west Mount Davidson lifts its isolated crest—guardian of the great bonanzas. Virginia City, Gold Hill, Silver City, Dayton, and Sutroville, are a splendid panorama seen from our place, while circling far away to the south and west the white domes of the Sierra Nevada glisten in the sunlight with indescribable splendour; the eastern horizon is scarred and marred by the black trachytic cope of the Diamond range.

There is a marked and encouraging change, too, in the lithological conditions of our immediate surroundings. Instead of the weird, unsightly volcanic masses of the deep canyon, the entire bed of the broad plateau is composed of porphyry, diorite, and other rocks identical with those of the Comstock. The surface lands of Como district are by no means level; on the contrary, the entire mesa is corrugated by elevated ridges, deep depressions, and canyons. The outcrop of the Como lode indicates a strong and permanent ledge, and although the work which has been accomplished in the way of its development is extremely superficial and imperfect, yet sufficient has been done to prove that the ledge in its immediate vicinity is surprisingly rich in gold and silver free milling ores.

Como, Nevada, U.S.A., Oct. 12.

WILLIAM ROSE,
Mining and Mechanical Engineer.

CORNISH MINING.

SIR,—There just now seems a desire for enquiry into the real state of Cornish mines as regards their present position and future prospects, such enquiry being made by persons desirous of investing, but the wild fluctuations in the Share Market, regulated regardless of improvements or falling off in mineral returns, or the conditions upon which returns may be expected, present false inducements to confiding persons, and keep capital from finding its way into the county to the disadvantage of its great staple industry. The market value of some "calling" mines being equal to, and in some cases above, the value asked for dividend ones, is one of the enigmas in mining valuation of which the mysteries of share jobbers can only give a solution. I have now before me reports of two mines, the management of both being on a par—one a progressive mine, having all its machinery and dressing appliances to erect and pay for, after which it may prove a blank, selling at the same market price as the one with from 6000*l.* to 7000*l.* worth of plant, quite free from debt, and paying good dividends; while there are instances of progressive shallow mines with ore ground laid open sufficient to guarantee the shareholders that machinery is all that is required to develop a permanently rich mine, selling for less than a quarter part of their intrinsic worth, hence the anomaly which misleads the capitalist.

St. Day, Scorrrier, Cornwall, Nov. 5.

CHARLES BAWDEN.

THE LLANRWST DISTRICT—No. II.

SIR,—In the letter which you did me the favour to publish in the *Mining Journal* of Saturday last I simply treated of the Bettws-y-Coed Mine as a creditable member of the central and most important group of mines in the Llanrwst district. I also stated that that lode was one of the principal—if not the principal—lodes yet known in the district. In stating this it is not intended to disparage any of the other mines, as they are differently situated and circumstanced, but to state a fact which should be known, the evidence of which consists in the great extent that this lode has been laid open, and the large quantities of ore which have been extracted from it, and the abounding evidence which exists (everywhere apparent) of its continued and increasing productiveness. It is seldom that any other than a main trunk vein can be not only traced but consecutively opened on a line unbroken except by the ordinary intervention and appreciable displacements of friendly cross-courses for a distance exceeding a mile, as is the case of this lode, especially when the extremities—that is to say, the remote ends in opposite directions—continue as powerful, capacious, and prolific of ore as heretofore, and there being no known adverse condition to interrupt its continuity or lessen its productive effects. It may be extended on indefinitely in either direction without encountering any interruption from obstructive agencies, or diminution of its value from the absence of properly nourishing sources, in which case it will not only sustain but stamp the character of the mines already opened on its course, but will probably enrich others existing, and which may exist, on the line of its extension in both directions, and establish for the district an unimpeachable reputation which is so manifestly indicated in its manifold features, so far confirmed by the developments of both the Llanrwst and Bettws-y-Coed Mines, as also by that of the intervening White Cliff Mine. I presume it would be difficult to name a mine so young that has produced so large an amount of ore as the Llanrwst, from what are termed regular and well defined true fissure veins; or one with so much ore still in sight at so shallow a depth; or with prospects exceeding those of this mine, indicative of future success and prosperity. All the surrounding features of the rock formation of the district are favourable to the most prolific yield of this and its associate lodes of the same group.

This lode throughout the Llanrwst Mine—I referred more particularly to the Bettws-y-Coed Mine in my last letter—increases in size and productiveness with every increase of depth and extension. Its character also becomes more refined as greater depths are reached. The mundic, which so abounded in the upper part of the mine, and at the adit especially, is rapidly disappearing at the lower levels, giving place to a refinement of lead and an otherwise general good character, demonstrating most unquestionably the soundness of the adage, "Mundic rides a good horse." Nearly 200 fms. in length have been opened on the lode—at this mine at the adit—scarcely any part of which has been unproductive; indeed, not a single fathom has been driven that has not produced some lead, whilst by far the greater part has been exceptionally productive for the depth—20 fms. from surface. Probably not less than 1000 tons of lead ore have been broken and sold from the back of this level, and there can be no doubt but that an equal quantity remains to be taken away, a moiety at least of which is already laid open of ground that will yield 1½ to 2½ tons per fathom, whilst, as I have already stated, the future prospects in depth are of a highly encouraging and assuring character, both as to an increase of quantity and quality of the ore. The character of the containing rocks, instead of becoming harder, uncongenial, and unfriendly, as is too frequently the case in many mines as deeper points are reached, softens and acquires an approved constitutional texture which never fails to inspire unquestioning confidence and animated expectations in respect of future results. The enlargement of a lode, or lodes, in depth implies accompanying conditions favourable to such a phenomenon, one of which is plasticity of the containing rocks, or rather their natural susceptibility to be acted upon and affected by various agencies, and at the same time contribute by their gradual decomposition the most estimable materials—constituents—metallic and otherwise, to the formation of the most continuous and prolific lodes. When such changes take place accompanied by increased productiveness, as is the case at the Llanrwst Mine, it is at once evident that the more plastic or easily yielding stratum is correspondingly agreeable to such a result.

The machinery at the mine is unsurpassed in its completeness, efficiency, and economical arrangements by any other mine of similar advancement in its development, combining rapidity of dispatch with thoroughness of execution in its concentrating effects, which leaves but little, if anything, to be desired in these respects.

VIDE ET CREDE.

THE BETTWS-Y-COED MINE, AND THE LLANRWST DISTRICT.

SIR,—I was very pleased to read "Vide et Crede's" letter in last week's *Journal*. As a shareholder I have recently visited the Bettws-y-Coed Mine, and have carefully gone through the works, both underground and at surface. I can fully endorse all that your correspondent has said both as to the soundness of the undertaking and the honesty and intelligence of the management. I believe that this mine will, at no very distant date, be a great prize. The ore stuff is being treated scientifically, and in large quantities, the object in view being a minimum of hand labour. The lode in the bottom of the 20 is some distance east of the shaft, estimated to be worth 3 tons of ore to the fathom, and the 30 east is being pushed on in a good lode under this ore; whilst in the back of the adit the lode is valued at 1 ton per fm., showing that development only is required to increase the returns and pay dividends, and when it is considered that ore enough is now being sold to meet costs, and pay for sinking and driving, the extra amount required to pay dividends on the moderate capital of the company will not be large. The development of the mine is also in a forward state.

That the Llanrwst district will ultimately be a great centre of profitable mining is, in my opinion, a certainty. The Llanrwst Mine fairly weighted with capital is one of the best enterprises in Wales at this moment. At Clementina there is, I am informed, a good lode in the bottom of the Roadside shaft, which they have just finished clearing, and this is hundreds of fathoms deeper than the mines on the top of the mountain, a clear proof that the lodes of the district are not mere surface deposits. At Hafna also, one of the mines owned by the Mineral Corporation, the prospects are exceedingly good; here also advance is the order of the day, and I learn with pleasure that rock-boring machinery has been started successfully.

There have been hundreds of thousands of pounds spent in our little island in seeking to find mines near or on the lodes of established great mines, but I believe we are getting wiser in our generation, and a "keenly gossan," "spots of ore," &c., do not any longer charm money out of my pocket. We nowadays want something more than "indications." I have long since determined to invest in only those

mines that have proved lodes, hence my becoming a believer in the Llanrwst district and—

A SHAREHOLDER IN BETTWS-Y-COED MINE.

London, Nov. 6.

NORTH WALES CORRESPONDENT, AND THE NEW DISCOVERY IN TREFEGLWYS.

SIR.—If your Correspondent will kindly peruse my letter again he will find that I did not say that copper had been found in paying quantities, although I think, at the same time, that it may be found in the valley of Llawrlyn, with all due deference to his opinion, because we find the lower Silurian there, and for at least two miles further east—and I should be glad to know where we are to find copper in paying quantities if not there? I have no time this week to enter more fully into this interesting subject. I should, however, be glad to have your Correspondent's reason for his previous assertion, which I believe is unwarrantable, and I may further add that there is quite a furore about the lead discovered near East Van, referred to in my last, and other sets taken up in the vicinity,

Nov. 6.

MINER.

LEAD MINING IN LLANARMON.

SIR.—There is an old saying that "the birds pick most at the sweetest fruit." It seems that my notes on the above subject, in the Journal of Oct. 25, have caused a kind of flutter in two or three instances, the consequence being that Captains W. Francis, of Northop, and Ede, of Llanarmon, have each come to the rescue in connection with the remarks I made on Bodidris and Lead Era. Now, I may say at the outset that I have made it a rule of my life never to give, knowingly and wilfully, an offence in the first instance. In this case I most certainly did not intend to offend my friend, Capt. W. Francis, nor anyone interested or uninterested in the Bodidris Company. I did not "set aught down in malice," but on the contrary. I wrote for the purpose of neutralising a statement made by a correspondent in the Journal of Oct. 18. In comparison to that writer's remarks, both on Bodidris and its managing director, Mr. Thomas, my remarks are mildness indeed, and I am sure any impartial reader would judge that I wrote in the interests of Bodidris when I said "I think the shareholders will be sure to have a first-rate property here." In order that Capt. W. Francis may put the Bodidris Mining Company right in the estimation of some of your readers I would recommend him to read the letter referred to in the Journal of Oct. 18. This, however, I will say, both for Capt. W. Francis and Mr. Thomas, that if I had any spare cash to invest in lead mining I would as soon be associated with them as anyone I know, as they are both practical miners. I must thank Capt. Francis for what he says upon Bodidris, which will very likely do good. I hope so, I had no other object in view.

I quite agree with Captain Ede in the sentence wherein he says—"If more attention was generally given to judicious trials before undertaking a permanent work less money would be wasted." Just so; the very thing I was aiming to impress upon your readers who are interested in lead mining. I do not wish to make comparisons between Lead Era or any other company in the district. It is not my intention to do so, because in many cases "comparisons are odious." I am exceedingly pleased, however, to see from Captain Ede's letter that Lead Era "has taken more men on." I hope the number will soon be increased, and that they will be engaged on profitable work. To show that there is no ill feeling on my part towards Capt. Francis and Ede I will promise both of them if it can be arranged the next time I go down into North Wales to avail myself of the general invitation Captain Ede gave some weeks ago to your readers to call upon him, and shall be glad to inspect his Bryn-y-Mwyn and Pant-y-Guland shafts or mines, and examine his Lead Era property with him; and if Captain W. Francis can spare time to show me over the Bodidris property at the same time it may not be labour lost. What is wanted in the lead mining of this district is to throw a fierce, continuous light upon it, which can only be done by such practical and scientific miners as Capt. Francis, Ede, Fraser, &c., and if they will write for truth's sake, and state facts clearly and intelligently, as I know they can, such remarks as those made by your North Wales Correspondent on the "roseate hues of early dawn," &c., who only a few weeks ago spoke disparagingly of the introduction of poetry into lead mining, will be looked upon as "bunkum" or "shoddy." It is laughable to think of your North Wales Correspondent being jealous of "Enquirers" and "Observers" in the Llanarmon district. Is he frightened that his "occupation will be gone?" If so, I can assure him I have something else to do, and "would rather be a kitten and cry 'mew'" than a paragraph clipper. I will, however, leave him in the hands of such able correspondents as "Observer," Capt. Ede, Capt. Francis, Mr. Fraser, and others, who know the Llanarmon district thoroughly.—Nov. 4.

ENQUIRER.

VAN UNITED MINE.

SIR.—This company took over the Van Consols, paying the creditors in full, with something like 3000*l.* or 4000*l.* in hand. Out of that there has been paid about, perhaps, 1500*l.* or 2000*l.*, leaving an equal amount in hand. This, it seems, is likely to be frittered away in litigation by attempting to establish an imaginary claim. I have reason to believe the parties against whom this claim is brought have obtained a high legal opinion, and have resolved to fight the liquidation to the bitter end. But my object in troubling you is to ask what ghost of a chance there is of the shares being subscribed for in a company enthrallled in three or four heavy lawsuits?

Nov. 5.

A SHAREHOLDER.

TALLEY MINE (Llansawel) is situate near Llandillo, in the parishes of Talley and Llansawel, Carmarthen. Among the items of news which indicate the general awakening of our national mining industry it is to be noted that a great discovery of lead ore has just been opened out in this property, and we are assured it is of so important a character that nothing equal to it has been seen since the starting of the Van Mine. About 12 months ago the company which is working the property advertised in this Journal, but mining adventures had been greatly discouraged for some time, and enterprise had lost the robust vigour which led to so many successes in former times. The company was not received by the investing public with the favour it deserved, and few shares were taken at the time, so few, indeed, the directors did not feel justified in going to allotment. The proprietors themselves, however, had confidence in their venture. They knew what they were doing. They pressed on the works with the utmost energy, and have now been rewarded for their intelligence and courage by the intersection of rich deposits of lead at three or four different points. We are informed the ore varies in value from 10*l.* to 50*l.* per fathom, and 100 tons are already at surface. The lodes are a continuation of those of the celebrated Nan-y-Mwyn Mine, and it is not, therefore, surprising that favourable reports have from time to time been given of the lead-bearing character of the district, and of this property in particular, by Mr. E. J. Frecheville, A.R.S.M., and by Capt. Joseph Evans, W. Hancock, Bryant, and others. It is, however, surprising that in spite of such a consensus of authoritative recommendation mining investors generally and especially the brokers failed to appreciate this extraordinary mine, and allowed it to pass unnoticed by them when the company was brought out. The tardy but complete success of the undertaking is entirely due to the discernment and heroic determination of two young ladies (the Misses Taylor), who have contributed several thousand pounds to carry on the work—rich results have already indicated. So positive has been their faith that they have insisted that all the requisite materials and machinery should be bought on terms of prompt cash. Thus all the heavy expenses have been actually defrayed. No credit has been sought, and no debts whatever now encumber the enterprise or mar its prospects of success. In this respect the ladies have furnished another worthy example of prudence in avoiding crushing liabilities at the outset. We trust that directors of the sterner sex will not be too proud to imitate this excellent example of feminine sagacity.

Mr. Thomas Ormiston, C.E., consulting engineer in London for the Bombay Port Trust, has just been appointed to report on the dredging of the harbour and making a breakwater at Famagosta, Cyprus. Mr. Ormiston planned the Prince's Docks recently constructed at Bombay.

HOLLOWAY'S PILLS—LIVER AND STOMACH.—Hot weather with chilly mornings always produce derangement of the digestive and assimilating organs, which demands early attention. For the speedy cure of indigestion nothing equals Holloway's pills. They have long been recognised both at home and abroad as the safest and most effectual remedy for sick headache, nervousness, pain in the stomach, flatulency, biliousness, simple and bilious diarrhoea, dysentery, dry skin, and torpid bowels. Holloway's pills protect the system from the deleterious effect of malaria and variable temperatures, thus proving themselves most valuable at this season when the organs of digestion are most sorely tried. They may be advantageously taken, without hindrance to business or pleasure.

Meetings of Public Companies.

UNITED MEXICAN MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Great Winchester-street Buildings, on Wednesday, Mr. CHARLES MORRIS in the chair.

Mr. W. M. BROWNE (the secretary) read the notice convening the meeting, and the minutes of the previous meeting, which were confirmed. The report and accounts were taken as read. The report was as follows:—

The directors herewith submit to the proprietors the Mexican statement of accounts and the London audited balance sheet for the six months ending June 30, 1879. The result of the operations of the old concern shows an excess of expenditure of \$1884. The gross output in the month of June amounted to \$21,586, but the ore produced sold for \$11,894, thus leaving a net expenditure of \$9692, of which \$2278 were paid by the owners, leaving \$7413 to the charge of the company.—Mine of Jesus Maria y José: This mine has been worked by the owners without profit in the six months, and consequently nothing has been paid on account of the company's claim.—Mine of Bayas: The drainage has been carried on favourably by the owners till within the last month, when on account of the very heavy rains the water had gained temporarily on the steam-engine and horse-whims. The share of profits in the six months accruing to the company was \$1156, which had been received on account of the debt.—Hacienda de Duran: The loss for the six months is stated to be \$493, which is probably an estimate on the safe side. The discovery in San Cayetano de la Ovejera yielding a large supply of ore, in May, June, and July, allowed of 23 mills being put to work, but at the latest date they were not in full operation.

NEW CONCERN.—Adit of San Cayetano and Mines of San Antonio de la Ovejera and Buenos Ayres: In the great adit the work has been confined to some timbering and repairs. In the shaft of San Antonio de la Ovejera the timbering securing the mouth of the shaft has been replaced by masonry.—Mine of San Cayetano de la Ovejera: On the ore discovered in January last workings of considerable extent were carried on downwards in the pozo de San Pablo and San Antonio, eastward in two galleries called San Antonio, and westward in a gallery called Santa Margarita. In June the ore on which San Pablo was being sunk suddenly disappeared, and the pozo was turned diagonally towards the lower wall, because the engineer wished to explore the entire width of the lode, hoping to find ore there. Up to the latest dates, though the lode was broad, his expectations had proved to be fallacious. In July the San Antonio pozo and frente also got poor, but ore was discovered against the lower wall of the lode and workings opened upwards and east and west called San Magin, San Luis, San Alfonso, and San Lucas. These latter frentes continue to be productive, though the ore in general is not so good as it was in the section of the lode first worked upon. The Frente de San Mateo was advanced to the north-west in all 68½ metres, but was stopped till some doubts can be cleared up and the result of San Lazaro cross-cut is known. The cross-cut of San Lazaro has been advanced 61 metres to the north-west, under the supposition that the lode was near, but it was not found till the end of August, and even then the engineer seems to be of opinion that merely a part of the vein, or even a distinct lode, has been traversed, and that more will be found to the south-west, in a continuation of the cross-cut. A frente has also been opened on the vein to the north-west, which will be a continuation of the Frente de los Angeles. Some water having entered into the pozo de San Antonio and San Pablo, the latter has been stopped till a communication from the old Frente de los Angeles can be made, sufficient to drain and ventilate that part of the mine.—Mines of San Miguel, and El Diamante: Little work has been done in these mines. Though the mine of San Cayetano has not continued to improve as the directors, with good reason, had confidently hoped in May when their last report was issued, it will be seen by the accounts that sufficient returns have been obtained to carry on a good deal of work with a very moderate outlay. In fact, upwards of one-half of the expenditure (the total being \$21,586) was covered by the produce of the ore, viz., \$11,894 in the six months. In the ten weeks, from July to latest date, Sept. 9, 2193 cargass (about 330 tons) of the value of \$4073 had been raised.

The fact of the lode having got poor downwards in San Pablo is to be regretted, but hopes may be entertained that in a still greater depth a favourable change may take place, and judging from appearances in the bottom of the pozo and in the cross-cut of San Lazaro, it is probable that a heave has taken place, and that the ore-bearing lode has for the time been thrown out, but may soon be discovered again as the works progress. In the meantime the frentes of San Magin, San Lucas, and San Luis, continue to yield ores, and some of better quality had been found in the last name, assaying from 17 to 25 marks, according to the value of the property and the expectations of ultimate success in the undertaking.—Mexican Account: Showing the approximate result of the operations of the company for the six months ending June 30, 1879:—

OLD UNDERTAKINGS.	
EXPENDITURE.	
Management, salaries, rent, agencies, &c.	\$3,338-61
Estimated loss on the Hacienda of Duran	409-47
REVENUE.	3,748-08
Rent of Hacienda of Duran	510-00
Premium on gold, &c.	198-58
Amount received from Bayas for profit on	
7½ bars to which the company is entitled	1,155-85
Excess of outlay	1,864-43
NEW CONCERN.	
Outlay on the Mine of Buenos Ayres	6-75
" Mine of San Antonio de la Ovejera	137-75
" Mine of San Cayetano de la Ovejera	21,223-32
" Mine of El Diamante	84-00
Total outlay	\$21,585-82
REVENUE.	
Net produce of silver on the half-year	11,893-87
Less amount paid by the owners for their share of outlay	9,691-95
Excess of outlay	\$2,748-08

Finance: On Sept. 9 the commissioner's available funds amounted to \$6661, and the value of the ore under reduction \$4100. The calls in arrears, as stated in the London audited account to June 30 last, amounted to \$454. 5*s.* have since been reduced by the receipt of 134*l.* 7*s.* 6*d.* to 319*l.* 17*s.* 6*d.*—Management in London: Mr. Jeremiah Carter, one of the auditors, having vacated his office on account of ill health, Mr. George Allen offers himself for election to fill the vacancy.

The CHAIRMAN said: It will be my duty to move that the report as submitted to you be received and adopted. I shall not occupy your time very long, because I have really always found a difficulty in meeting you, having no particular feature in the mine to describe. The fact is, we are making works of exploration, and we have found sufficient silver in various parts of the property to justify us in continuing our works. I cannot say that we have found enough silver to make it pay; but in the past six months we have paid half our working expenses, and with a larger extraction of ore we could pay the whole of the working expenses; or if we find that the ley of the ore gets 2 marks per monion more than now we could pay the costs out, and afterwards anything we discovered would come to us as a profit. Since we issued this report we have received a despatch from Mr. Hay. It has no particular feature except one, and that is that they had discovered a small strip of exceedingly valuable ore, worth more than 100*l.* per ton. I am afraid that ore of that value will seldom be found, but it must be considered an encouraging feature, and as, perhaps, a proof that it may lead to further discoveries in the quarter in which this ore has been found. However, as it is, I do not want anyone to run away with the notion that we have got into a lode of that richness, as the fact is that it is only a very small strip of ore.

Mr. J. C. RUDING: Might we have the despatch read?—The CHAIRMAN: Oh, certainly. I will not trouble you further now, but I will move the adoption of the report and accounts, and when that is seconded I shall be happy to answer any question which any gentleman may have to put.

Mr. GOLDEN: I will second the following despatch received October 31:—Sept. 25.—Mine of San Cayetano de la Ovejera: In the cross-cut of San Lazaro the ramification of quartz to the alto of the cuerpas we have traversed, having ceased we are now driving through the solid mountain rock. If in our advance during the next fortnight we find no sign of a vein we shall begin driving to the north-west on the cuerpas traversed by the cross-cut, as by that time the communication between Los Angeles and San Pablo will have been made, and the new frentes can be opened without increasing the weekly outlay. In the work upwards from Los Angeles to San Pablo the rock is to appear the same as we had in the bottom of San Pablo, and the water begins to filter from the winos above, where it has a depth of 1 metre only. In the winos of San Antonio, however, it has risen to 2 metres, but as no work is carried on in that place we suffer no inconvenience from it. The contraleño of San Pablo, which since last week is worked "a destago" (contract work), shows an improvement as regards the quantity of ore thrown down, though the ley remains as low as it was at the date of my last report; from this working we get the largest amount of cargo. The quality and quantity of ore in San Luis has decreased since the beginning of this week, but San Lucas has improved, inasmuch that it is from this working that we get nearly the whole of the small lot of superior ore that has been kept separate. Since eight days we have a very thin strip of pretty rich ore in this working, of which we have gathered already a few pounds that probably will assay more than 100 marks, but our advance in this end is not great as the lode is very narrow. The frente of San Magin, to the west, has communicated with a point worked by a buscon some three months ago, but we continue to drive to the west. There is no change in the ore since this frente was begun. We have yet some workmen to the east and west of the contraleño of San Pablo, and in a place where we have begun to the base of the original end of San Antonio, our object being to cut the ore in San Lucas and San Luis; this work we are hardly commenced when we found ore, though in small quantities, and on it go on driving.

Mr. L. H. PERRY: I should like to ask if we have any shareholders in Mexico, and also if you are satisfied with the new manager?—The CHAIRMAN: Mr. Hay has not been recently appointed.

Mr. PERRY: I mean the mining manager.—The CHAIRMAN: Oh, yes; we are

The SECRETARY: We have Mexican shareholders in partnership with the company. There are a certain number of gentlemen there who did not come in with this company, and a certain number who did.

Mr. RUDING: I presume the gentleman means to ask whether there are any shareholders on the register in London who live in Mexico.—The SECRETARY: There are none.

Mr. RUDING: I was not aware there had been a new manager.

The SECRETARY: It is a new underground captain, not the chief engineer.

Mr. G. ALLEN: What is the proportion of the Mexican holders?—The SECRETARY: It is about a quarter, or not quite so much.

Mr. ALLEN: I should think that is a good feature, because they can look after the affairs.

Mr. RUDING: At all events it would argue that they have some confidence in the mine or they would have given it up.

The report and accounts were then unanimously adopted.

The CHAIRMAN: I am sure you will all be sorry to lose Mr. Carter (one of the auditors), more particularly for the reason that his health will not allow him to attend to business matters so much as he did formerly. I move that Mr. George Allen be elected an auditor of the company in the room of Mr. Carter, resigned.

Mr. GOLDEN seconded the motion, which was carried unanimously.

Mr. ALLEN briefly returned thanks for the confidence which the shareholders had shown in him by electing him one of their auditors.

On the motion of Mr. RUDING, seconded by Mr. PERRY, a vote of thanks was passed to the Chairman and directors.

The CHAIRMAN, in thanking the shareholders for the vote said, I can only hope that we shall have something to repay us for our patience, and that when we meet next time we may have better news to place before you. I have had an interview with Mr. Furber lately, and he still entertains a favourable opinion of our important property. He is in very bad health, and could not attend the meeting. Mr. Furber is very often here—two or three times a week sometimes—and would always be glad to meet any of the shareholders here.

The meeting then terminated.

PANULCILLO COPPER COMPANY.

The sixteenth ordinary general meeting of shareholders was held at the offices of the company, Great St. Helen's, on Tuesday, Mr. JOHN PENDER, M.P., in the chair.

Mr. J. S. ALEXANDER (the secretary) read the notice calling the meeting. The report of the directors, which was taken as read, was as follows:—

The directors have the pleasure to submit to their fellow-shareholders the company's annual accounts, made up at Panulcillo to June 30 and in London to September 30, which show a net profit for the year of 17,528*l.* 8*s.* 3*d.*

The year now accounted for 6321 tons of regulus were made at Panulcillo, containing 2328 tons of copper, according to analyses. The average price realised was about \$12-50 per quintal metrico, as compared with \$13-24 in previous financial year, \$15-25 in year 1876-7, and \$15-77 in 1875-6.

By the accompanying mining report it will be observed that immediate and great economies, estimated at \$15,000 to \$20,000 per annum, are expected upon Panulcillo operations after completion of the San Gregorio tunnel this month. The reserves of ores were estimated at 1,000,000 quintals, as compared with 700,000 quintals on June 30, 1878, and 800,000 quintals same date in 1877 and 1876.

In view of the approaching maturity of the debentures remaining outstanding of the 30,000*l.* emitted in December, 1874, the board propose to issue 40,000*l.* at par in first mortgage debentures, bearing interest at the rate of 10 per cent. per annum, principal payable Dec. 1, 1884, with option to the company to pay them off earlier. A circular inviting subscriptions for the new issue accompanies this report.

The directors announce with extreme regret the death of Mr. Panulcillo, on June 14, of Mr. Richard Davis Heatley, a gentleman who had been associated more or less with the board since the formation of the company, and whose urbanity and integrity commanded the respect of all who knew him. Mr. Heatley for some years past had conducted the company's business in Chili. Steps have been taken for efficiently supplying his place.

The two directors who retire by rotation at the meeting are Mr. John Pender, M.P., and Mr. Francis John Johnston, and who being eligible offer themselves for re-election. The auditors, Messrs. Harding, Whinney, and Co., offer themselves for re-election.

The CHAIRMAN said he thought the best way, without going over every detail in the report, would be to give a few hard facts and figures which bore upon the general business of the company. At Panulcillo, during the past financial year, over 38,000 tons of copper ores were extracted, calcined, and delivered at the furnaces, at a cost, in round numbers, of \$210,000. The furnaces produced, at a cost of over \$692,000, 6321 tons of regulus, which realised \$821,000, leaving a profit of about \$130,000. The Chili cost of \$692,000 included the following items:—Wages: Mining, \$163,000; smelting, \$48,000—together \$211,000, or 30 per cent.—Fuel: Coke, 5600 tons; coal, 4000 tons—the former costing \$91,000, and the latter \$57,000, together \$148,000, or 21 per cent.; carbonates, 12,000 tons, costing \$175,000, or 26 per cent.; also fuel, forage, materials, carriage of regulus, Valparaiso agencies and Compañia (Chili) salaries, and general charges—\$154,000, or 22 per cent., making a total of \$692,000. One satisfactory feature of the accounts now presented, as compared with those of the previous year, was the increased profit of \$130,000, as against \$19,000, which had resulted from the improved capacity of the establishment for producing cheaply, the average price realised for the company's regulus having been lower in the later period. The average English price for g.o.b. of Chili bars in the year now accounted for was 57*l.* 15*s.* Upon comparing that price with the present value of copper, the hope seems justified of even better results from the present year's Panulcillo operations. For the first four months—say, July to October—the Chili profits are calculated at 13,500*l.*, subject to reduction by amount of London charges, including debenture interest, while copper prices, in view especially of the general improvement in trade, were likely to be better than last year's; there did not seem any reason to expect, on the whole, any great enhancement of Chili costs. Some items might be more expensive, such as fuel and carbonates, and it was impossible to predict how the war might affect the interest of Panulcillo. In response to a Government call for volunteers about 100 men left, but the manager reported to the board that they could easily be replaced, and it might be said that so far the war had not directly affected Panulcillo injuriously. It would have been observed from the last year's mining report that the San Gregorio tunnel was expected to be completed last month. This important work had been carried on for some years at cost of revenue, and upon its completion a considerable economy of mine cost is expected. This was a very brief epitome of the state of things at Panulcillo, and contrasted very favourably with what he stated at the meeting last year. (Hear, hear.) At that time he stated there was a loss of about 3500*l.*; he stated at the same time that the economies which had been effected led the directors to suppose that the prospects for the coming year were likely to result very differently from the year just passed. At that time the copper price was about 58*l.* per ton; since that period copper had gone down as low as 52*l.*, which had been the average price during the greater part of the period, but to-day copper was 65*l.* per ton; but, notwithstanding the low price to which copper fell, the result of the working, as he had shown them, was a gross profit of about 24,000*l.*, and a net profit of 17,528*l.*, which was a satisfactory feature. (Hear, hear.) What were the prospects for the future? As far as he could see, the price of copper, which was now at 65*l.*, might be considered a very low price, and even if it were 10*l.* dearer it could not be said that copper was at anything like a high price; therefore, if the copper price stood only at the price of 65*l.* or 70*l.*, he thought, looking at the telegraph which they had just received—which did not include the present high price—the result of the future, so far as copper was concerned, appeared favourable for Panulcillo. (Hear, hear.) Another important feature was that they had finished the San Gregorio tunnel, which had cost a considerable sum out of revenue, but he hoped that dead work was now accomplished, and would become a living thing. That tunnel afforded greater facilities for getting the ore, and, as far as the information went, the directors hoped to have the ore in increased quantity and in improved ley. The debt which accumulated during the long period of bad times which they had passed through amounted at one time to something like 87,000*l.*; the directors had gone on paying that debt till it now stood at something like 19,300*l.*, so that at the rate of profit which they were now earning they would very soon see the end of that debt. (Cheers.) Another favourable feature was that even during those hard times they had reduced the debenture debt from 80,000*l.* to 40,000*l.* (Hear, hear.) The directors originally took power to issue 100,000*l.* of debentures, but they only issued 80,000*l.* At present the amount floating was, as he had said, 40,000*l.* The directors proposed to pay off 80,000*l.*, and to re-issue about 40,000*l.* The shareholders might ask how it was, seeing that things were looking so bright and encouraging, that it was considered necessary to re-issue this amount of debentures? The reason was very simple. During the hard times the directors knew what it was to want money, and with the company not in the best of credit they had to pay high prices for the debentures. Looking at the state of things in Chili at the present time, it was impossible to say that the company might not want more money, and the directors thought it better to re-issue the 40,000*l.* of debentures, at the same time taking power to pay them off at a small premium in the event of the company continuing the success which the directors anticipated. It was well in these times to keep the finances of the company in a steady and wholesome position. He might mention that these debentures had been applied for largely in excess of what the directors had power to issue. There was one point which he mentioned with the deepest regret—the death of Mr. R. D. Heatley, who had been long in the management of the mine, who was a personal friend of his own of nearly 40 years' standing, and also an old friend of Mr. Johnston's family. Mr. Heatley was a highly trustworthy man, and he had no hesitation in saying that the great draw of prosperity which was about to shine upon Panulcillo had been mainly brought about by the steady persevering industry of Mr. Heatley in cutting down all extravagances, and ridding the concern of many claims which were prejudicial to the interests of the shareholders. (Hear, hear.) Personally, he regretted the death of Mr. Heatley very much, and the board joined him in the expression of regret, and in sincere and heartfelt sorrow in losing such a valuable and excellent manager. (Hear, hear.) The directors had in some degree looked forward to Mr. Heatley's passing away, and twelve months ago they made such an arrangement as they hoped would carry on the business in the same way as it had been carried on under Mr. Heatley's management. That gentleman was on the spot now, and he hoped the same policy which was so admirably pursued by Mr. Heatley, and so highly approved by the board, would be carried out by the gentleman who succeeded him in the supreme command. (Hear, hear.) All persons who were interested in mines knew they were uncertain properties, but, as far as he could see at present, he thought that they had turned the corner in Panulcillo, and that they might now look forward to brighter times. Before they met next year if they had the same success and prosperity which had attended the working of the past year, and of the first four months of the present year, he hoped the directors would be able to cheer the shareholders with something in the shape of an interim dividend. (Cheers.) He did not say that with positive assurance, but, to use a school boy phrase, it would "burn a hole in his pocket" to keep the profit in hand if it were made, more especially as he had the shareholders had waited so long for a return. (Cheers.) Therefore, if the profit were made the shareholders should have it. In conclusion, the CHAIRMAN moved the adoption of the report and accounts.

Mr. F. J. JOHNSTON seconded the resolution.

Mr. SCHOFIELD asked whether any advantage would be gained by bringing the

copper to this country for sale?—The CHAIRMAN said the matter had not been lost sight of. There were practical men on the board, and up to the present time there was no reason to regret not having brought the copper to this country for sale.

Mr. SCHOFIELD said he thought nothing could be more satisfactory than the position of the company at the present time, and if the present price of copper continued they would soon be making a profit of 50,000l. a year.—The resolution for the adoption of the report and accounts was then put and carried.

Mr. F. W. BOND proposed the re-election of Mr. John Pender, M.P., as a director. It was unnecessary to say anything of the energy and ability with which he had conducted the affairs of the company in the chair, or the immense interest which he had always held in it—an interest which he had never decreased, but which he had been increasing. It was not often that the Chairman devoted so much ability and energy to a concern, or in bad times provided, as Mr. Pender had done, the means of carrying it through its temporary difficulties. He thought this should give the shareholders great confidence in the management. (Cheers.)—Mr. A. H. BERTHOUD seconded the resolution, which was put and carried.

The CHAIRMAN having acknowledged his re-election, proposed the re-election of Mr. F. J. Johnston as a director. He said that Mr. Johnston was a father and Mr. Johnston himself, as well as his family, had been hearty co-operators in the work, and had it not been for Mr. Johnston and himself (Mr. Pender) the company must have collapsed long ago. (Cheers.)—Mr. BERTHOUD seconded the resolution, which was carried.

Mr. JOHNSTON briefly acknowledged his re-election.

On the motion of Mr. SCHOFIELD, seconded by Mr. NUTTER, the auditors, Messrs. Harding, Whinney, and Co., were re-elected.

The CHAIRMAN moved that an expression of regret on the part of the company should be conveyed to Mr. Hestley's son and relations. He also moved that the thanks of the meeting should be given to the staff at Penallt, which had so thoroughly responded to the wishes of the board, and conducted so satisfactorily the important interests entrusted to them.—Mr. JAMES seconded the resolutions, which were put and carried.

Mr. JAMES referred to the long time during which the directors had conducted the affairs of the company without any remuneration, and suggested that the time had come when the shareholders should make some recognition of the services of those gentlemen.—The CHAIRMAN said he thought the time had not yet quite arrived. The shareholders had not yet tasted the sweets, but when the first dividend was declared it would not be pleasant to the directors to have their services recognized. (Cheers.)

On the motion of Mr. JAMES a cordial vote of thanks was passed to the Chairman and directors, and the meeting broke up.

LEADHILLS SILVER-LEAD MINING COMPANY.

The fifth ordinary general meeting of shareholders was held at the offices of the company, No. 30, Finsbury-circus, on Thursday,

Mr. PETER WATSON, in the chair.

The SECRETARY (Mr. F. R. Wilson) read the notice convening the meeting, and the following report was also read:—

Subjoined I beg to hand you notice of the fifth ordinary general meeting of the shareholders of this company, with a copy of the statement of accounts that will then be submitted. The directors and agent's reports will be presented at the meeting. The directors have deferred preparing their report in the hope that they may be able to announce that Lord Hopetoun's guardians have favourably considered the application made to them, and have granted a reduction of the dues. Anticipating the directors' report, I would particularly draw your attention to an alteration that has been made in the accounts. It will be observed, from a foot-note to the profit and loss account, that in valuing the lead and lead ore in stock, the lead ore broken, but not dressed, has on this occasion been omitted. After careful consideration of the matter, the directors have come to the conclusion that the alteration is advisable. The experience of the last few years has shown how impossible it is to value correctly stock that is not, in the ordinary course of mining, marketable till some considerable time after it is mined. The lead ore has latterly proved itself liable to such heavy fluctuations, they have decided to adopt the course now taken, and to include in the accounts only such of the produce as can readily be converted into money. In considering the accounts to June 30 last it must, therefore, be borne in mind that had the old system been adhered to the value of the lead and lead ore in stock would have been increased by the estimated proceeds of rather more than 300 tons of lead ore, slime lead, and fume lead, and that the loss on the 12 months' working is less to that extent than it appears to be.

The CHAIRMAN explained that the reason no directors' report had been issued was simply this—that they had been, and now were, in communication with Lord Hopetoun and the trustees with regard to a reduction of royalty, in accordance with the request of the shareholders not only at the last half-yearly meeting, but also 12 months ago. The reason why Capt. Waters' report had not been issued was that he meant visiting the mines, and that the shareholders should thus receive the latest information. He might tell them that Captain Waters had just returned from the mines, and he would call upon him to read his report.

Capt. WATERS read the following report:—

Nov. 6.—It is unnecessary to go into lengthy remarks by way of introduction on this occasion. I will confine myself to a succinct account of the present condition of the mine, and try to show what the output, for some time in the future, is likely to be from present sources.—Brow Vein: Gripps' adit, north of Glenogair shaft, is driven about 105 fms., and the end is now across the valley and entering the hill ground beyond. The lode has been unproductive for some time past, but a change for the better in the country rock has lately taken place, since which more spar is seen in the vein, and altogether things look healthy for an improvement. The high ground in point of said end, and parallel to where the Sussanah lode made its riches, great things have for years been calculated upon. There are three pitches at work on this lode, by 11 men, worth together 58 cwt. of lead ore per fathom.—East Stayvoyage Vein: Gripps' adit, south of Muir's cross-cut, is driven about 20 fms. on a strong sparry lode, which has yielded occasional stones of ore of a promising character throughout. We expect some of this ground will be tried by tributaries. The pitch in bottom of Poulshiel level on said lode, by four men, is worth 25 cwt. of lead ore per fathom.—George's Roust Vein: We consider Gripps' adit north on this vein to be a first-rate trial, as the section of country in front of present prospect is like that spoken of in connection with Brown Vein parallel to the Sussanah Mine.—Brown's Vein: This is the great vein of the district, and the more I see of it the more settled is my conviction that it is a continuation of the Sussanah vein southwards. Jeffrey's shaft is sunk to the 70 fathoms Gripps' adit, and men are now engaged cutting plat and preparing to fix pitwork necessary to enable us to deepen the shaft for another level. No time will be lost in getting into full swing for going down here. The 70, north of shaft, now driven about 10 fms., has just passed through a good-looking bunch of ore about 2 fms. in length, worth 30 cwt. per fathom; this looks like the outcrop of a deep deposit of ore, the surrounding being similar to that seen in connection with the discovery at Moffat's and Foley's winzes, and which have led to the great lode now being opened on in the 20, south of Jeffrey's. We shall next week commence sinking a winze below the 70 on said bunch, and hope next month to be able to report a success on it. The 70, south of shaft, has laid open a run of ore ground about 25 fms. in length; worth from 1 to 2, 3, and 5 tons per fathom. Those figures may be taken as the value of the ground below the 70, into which we shall explore by winzes simultaneously with the sinking of the engine-shaft. We have three stopes in the back of this level, by ten men, worth 1½ ton, 3 tons, and 2½ tons per fathom respectively. Two pitches in the bottom of the 55, north of shaft, by four men, worth together 27 cwt. of lead ore per fathom. The pitch in the bottom of the 41 south by two men; worth 25 cwt. of lead ore per fathom.

The 20 fathom level is driven south of Jeffrey's about 110 fathoms, and is now within about 9 fathoms of the vertical line of Wilson's shaft; this drive has now laid open 12 fathoms in length of ore ground, and the forebore to-day is worth about 5 tons of beautiful soft galena per fathom for width of lode carried, which is 5 ft. We have 4 to 5 ft. in width of lode still standing on the hanging side of the drive, which where cut into by Foley's winze shows good ore. It is a pleasure to look at the lode along the bottom of the 20, and we shall push winzes down into it as soon as possible.—The 20 and is sufficiently out of the way to admit of our sinking below the level. We have eight men stoping the ends of Foley's winze above the 20, and value the north end at 2 tons and the south end at 6 tons of lead ore per fathom; neither of these stopes is yet into the richest portion of ore ground to be seen here. The outcrop of this great deposit is to be seen along the bottom of Gripps' adit, adjoining Moffat's winze (it does not reach the roof of said level), and remembering how it has improved in width and value from that point to the 20 I do think we may calculate upon it as a deep and permanent run of ore ground. Gripps' adit, south of Moffat's, is now within about 7 fathoms of the junction of Brown's with Dobie's vein, south of which, as stated in previous reports, it is said an old and productive mine exists. The next few months will prove this matter I trust to our satisfaction. Wilson's shaft is now cleared and secured 27 fathoms below the surface, and to about 21 fathoms of Poulshiel adit. The men have so far drawn the stuff by hand, but arrangements are being made for casing and dividing the shaft, erection of horse-wheel, pithead, &c., which when completed will enable us to go down with far greater speed than hitherto. This will be the main engine-shaft for Brown's Mine, and as our present water-wheels will command the pumping and winding of the mine ultimately from Jeffrey's to Wilson's, and south of Dobie's junction, it needs be the utmost attention must be given to the shaft in question, the outlook from it being of great moment to the future of the company. We have eight men engaged at this point.

Raik Vein: Gripps' adit, at a point some 75 fathoms north of Watson's shaft, is being driven south to get into, or under, old Raik Mine proper. There is a strong lode in the end, composed of spar and stones of ore, but we are not far enough to catch the run of the ore ground of the old mine. The old men worked for a length of 50 to 60 fathoms, hence a discovery of importance may be made as we go forward under their old workings. At a point 18 fathoms south of Watson's cross-cut we are sinking a winze (now down nearly 4 fathoms) on a lode about 7 fathoms of the junction of Brown's with Dobie's vein, south of which, as stated in previous reports, it is said an old and productive mine exists. The next few months will prove this matter I trust to our satisfaction. Wilson's shaft is now cleared and secured 27 fathoms below the surface, and to about 21 fathoms of Poulshiel adit. The men have so far drawn the stuff by hand, but arrangements are being made for casing and dividing the shaft, erection of horse-wheel, pithead, &c., which when completed will enable us to go down with far greater speed than hitherto. This will be the main engine-shaft for Brown's Mine, and as our present water-wheels will command the pumping and winding of the mine ultimately from Jeffrey's to Wilson's, and south of Dobie's junction, it needs be the utmost attention must be given to the shaft in question, the outlook from it being of great moment to the future of the company. We have eight men engaged at this point.

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and sundries, 334l.; each month's outlay being charged in the cost sheets from time to time—we shall then have a total length of due from furnaces to stack of 870 yards, or 895 yards to top of new stack. We estimate the quantity of fume now in the flues and catch pits at the works to yield 1000 bars of pig-lead; hence you will see the importance of an extended flue, chambers, and so forth. Now there is an improvement in the metal market we may look forward to better days in the near future.—ARTHUR WATERS.

P.S.—I beg to submit the following figures:—Lead ore on hand washed, 264 tons 13 cwt.; lead ore broken unwashed, 159 tons 1 cwt.; total, 423 tons 13 cwt. the slimes and only neaps last meeting 145 tons 13 cwt. for the market, 7577 bars; pig-lead in slags, waste heaps, and at smelt mills, 300 bars; pig-lead in fume and flues, pits, &c., 1000 bars; total, 8377 bars, or (say) equal to 443 tons 17 cwt.—A. W.

The CHAIRMAN said that he could not tell them more than Capt. Waters had; and, in fact, the directors' report would be virtually embodied in what he had now to say. The directors, in the first place, had especially to regret this year's unfortunate statement, which all the shareholders had received, containing a balance of profit and loss which was not in the control of the board to alter. It had so happened that on June 30 when this balance-sheet was prepared, lead was 13l. per ton, and if they had sold at that time, they could not have obtained more than 12l. 5s. or 12l. 10s. The nominal market price, however, was 13l. at which they took it. The directors had thought it desirable to simply give us, as it were, a cash account of the actual pig lead they had in stock. With regard to the various heaps which some of the shareholders had seen, there was a very large accumulation indeed, but it would be utterly impossible to go on estimating them, therefore they gave actual figures, and when this ore was dressed and returned it would be in due course brought into the accounts, otherwise the accounts would be very different to what they were. In addition to that they had gone on expending money in accordance with the request of the shareholders, not only at the last meeting, but also 12 months ago, when they mentioned what outlay would have to be gone to. They had done this most energetically, and had developed the mines in a thoroughly systematic way, and which, as they would see by Capt. Waters' report, were turning out to their benefit. In order to realise what lead was when the company started and what it was selling at in June last, he would tell them that when they started pig-lead was 21l. 7s. 6d. a ton, and it had lately been down to 12l. 17s. 6d.—a decrease of 8l. 10s. This amount on 2000 tons a year would make a difference to the company of no less than 16,000l. On the lead ore which they had sold at the outset to pay 200l. a month in the shape of dues on the lead ore, whether they had 7l. 17s. 6d. a ton, or depreciation of 50 per cent. They could thus realise the unfortunate position they had been in with regard to the prices, making a difference of 16,000l. a year to the company; therefore, if lead had kept up to the price it was at when the company was started they would have had very good dividends indeed. It was, however, no use looking to the past, they must now look forward to the future. The lead which was taken at 13l. a ton in the accounts was now at 17l., which made a difference of something like 1800l. on the stock, taken then and now. Then, again, there were 300 tons which they had not put into the accounts, which made a difference of 2700l.; in other words, they had a profit of 4500l. On the other side they would find the expenditure, in which, as Capt. Waters had told them, they had estimated machinery for jiggling purposes, and so on, and the sinking of Watson's shaft, which was a great outlay. They were now sinking Wilson's shaft, which was also a large outlay, and were developing the mines in a vigorous way. The depression they had had to go through had not interfered with the progress of the work, and it was on that account that the shareholders, six and twelve months ago, had impressed on the directors the absolute necessity of memorialising Lord Hopetoun and his trustees for a reduction of royalty. 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shareholders in the mine) were elected to fill the vacancies caused by the retirement of Mr. Kinnear and the non-qualification of Mr. F. Clift.

In reply to Mr. Schofield, Captain Andrews stated that the value of the ore laid open was about 14,000, or 15,000, and if the ore continued from the 108 to the 120 fm. level they had a reserve of 39,350, worth of ore.

Mr. SCOTFIELD then moved a vote of thanks to the Chairman, the committee, and to Capt. Andrews for the satisfactory manner in which they had conducted the affairs of the company, and for bringing the mine to its present successful state. This was carried unanimously, and after a few remarks from the CHAIRMAN the meeting separated.

HERODSFOT MINE COMPANY.

A general meeting of adventurers was held at the offices of the company, 79, Gracechurch-street, on Wednesday, Mr. HENRY GOULD SHARP in the chair.

The accounts showed a balance of 6137 10s. 2d. in favour of the mine. It was explained that in the accounts about 800, was charged on account of the new shaft and surface work connected with alterations in the dressing department. The following is a copy of the agent's report:—

Nor. 4.—During the past three months we have communicated the new engine-shaft to the 205 fm. level, and a full set of men are engaged cutting it down, and putting in the skip-rod, main rods, and lockway. When this work is completed we shall be in a position to pump the water and draw the stuff from the 215, which we shall reach long before the shaft is completed. Our progress in sinking has been rather slow, owing to the shaftmen being obliged to secure the balance-bob at the 50, which I found was in a very dangerous state. At the 205 we have cut a plat, and have nine men sinking below, who are making good progress, and sinking fully 5 ft. a week. The lode in the shaft is large, and of a most promising character; in the last few days it has improved, and is producing very rich stones of lead, worth about 7 cwt. per fathom. The lode in the 205 north is also large and improving—now worth from 10 to 12 cwt. per fathom. The lode in the south end is again disordered by another slide, still producing saving work for the dressing-floors, but not to value. The lode here is very changeable, and at times rich. No. 1 stope, north of No. 2 winze, is worth 18 cwt. of lead per fathom. No. 3 stope, north of No. 1 winze, is worth 15 cwt. of lead per fathom. No. 4 stope, below the 190, south of No. 2 winze, is worth 18 cwt. of lead per fathom. In the 190 north the lode is 3 ft. wide, and producing about 7 cwt. of lead per fathom. At this level we have commenced to open on a lode, which appears to be standing in the western side, and not seen below the 160. The lode is 2½ ft. wide, well defined, and producing 5 cwt. of very rich ore per fm. No. 1 stope, in back of this level, is worth 15 cwt. of lead per fathom. There are hundreds of fathoms of ground standing north of this stope that can be taken away at a good profit. No. 2 new stope north, in the back of this level, is worth 10 cwt. of lead per fm. The mine is now in better working order, and also better ventilated. In the last three months we had rose and sunk 14 fms., drove the ends 18 fms., and stoped 68 fms. From this ground we have rose 100 tons of ore. At surface we have opened an air-shaft, and have put up an iron stack, which has given us much better ventilation. We have also erected one set of jiggers, which are answering remarkably well, and have cut the least around the hill, built the wheel-pit for the new crusher-wheel, and are now busy engaged removing the crusher, &c. Another month will place the floors in a much better position for dressing the ore at less cost. The mine throughout has improved, and I have no hesitation in saying, if the machinery keeps in order as it now is, we can return more lead in the next six months than we have in the past nine.—P. TEMBY.

The agent of the mine was present at the meeting, and in answer to enquiries said that the engine-shaft is down 7½ fms. below the 205, and in about a month it will be down to the 215. In the last few days a branch of almost solid lead ore has been met with in the eastern side of the shaft, and which will fall into the lode in about 8 ft. further sinking, when a considerable improvement is expected. The branch will also fall into the lode after driving 9 or 10 ft. at the 215 south. Taking these features into consideration, the agent thought that one might reasonably look to an early discovery in the 215, and which would materially increase the future returns of ore.

MELLANEAR COPPER MINE.

The ordinary general meeting of shareholders was held at the offices of the company, Queen-street-place, on Tuesday, Mr. ROBERT HENRY in the chair.

The notice calling the meeting was read by Mr. W. G. WILLIAMS. The report and accounts were taken as read.

The CHAIRMAN said he was sorry to see so few shareholders present, but he presumed that might be taken as a sign that the shareholders were pretty well satisfied; for he had noticed that when things were progressing satisfactorily the shareholders often did not take the trouble to attend, but when things were not flourishing, or when a company was in difficulties, shareholders often attended and "sat upon" directors. The report and accounts, which had been circulated, explained very much the state and condition of the mine, which were in every way as satisfactory as could be reasonably expected. The produce of the last six months had been 3236 tons, which had sold for 96297, or an average of 27 19s. 6d. per ton. The last sale, on Oct. 2, was at 37 2s. 2d. per ton. Since then there had been a considerable increase in the price of copper, and there was every reason to hope that the next sales would realise 37 5s. or 37 10s. per ton. The quantity was larger than previously, and looking forward to the current half-year the shareholders might reasonably hope for a pretty good report at the next meeting. The reserves had increased in some measure. As regarded the finances, the profit for the six months had been 1577 6s. 7d., which added to the balance previously remaining at credit of profit and loss, made a total of 17877 9s. 3d., which had been disposed of as follows:—10000, to a dividend of 2s. per share, paid on August 20 last; 3111 5s. 10d. to writing off balance of preliminary expenses; 1500, added to reserve fund; and 3287 3s. 5d. carried forward to next account. It was satisfactory that they were enabled to add to the reserve fund 1500. They had also cleared off all the preliminary expenses, so that there was now nothing standing against the company in that respect. The whole concern was in a satisfactory position, but Mr. Richard Taylor would give all necessary explanation regarding details, and a letter received that morning from the manager stated that the deepest level—the 100 east and west—was looking remarkably well, and the present appearance of the mine was better than at any time since they had commenced operations. The stone-breaker had been fixed, and the engine to drive it would be completed in a few days. In conclusion, the Chairman moved the adoption of the report and accounts.

Mr. S. J. WILDE seconded the resolution, which was put and carried.

Mr. RICHARD TAYLOR said it was not necessary to add much to what was contained in the report and what had been stated by the Chairman, but it might be interesting to the shareholders to have a little explanation of the section hanging on the wall. When the company took over the mine it was filled with water, and the section showed the large amount of development which had been accomplished during the time the company had worked the mine; but this arose, to some extent, from the fact that the ground was exceedingly favourable for the achievement of this sort of work, such as sinking and driving levels. There was every reason to believe that they would have a good course of ore under the present bottom of the mine. The 100 fathom level going eastward was in a good course of ore, turning out 4 tons per fathom, and the wine sinking in the 90 was equally good; therefore, there was every reason to expect that piece of ground would be as valuable as it had been above. With respect to the reports regarding the produce of the levels the agents had always stated the quantity of ore broken in the actual size of the level; but the lode was frequently larger than the width of the level, and in taking it away in the stopes afterwards it was often the case that the ground turned out more than the reported produce of the level. The point was that they had not very soft ground to work in in Gundry's shaft. They had fairly good ground until they sunk below the 100; since then they had come across a considerable quantity of elvan in the kills, and the last report stated that the shaft was likely to enter a mass of elvan. The question would arise what would be the probable effect that this would have on the lode? That was a somewhat difficult question to answer, inasmuch as the effect of elvan on lodes in Cornwall varied exceedingly; in some cases it enriched the lode, in others it had no effect. This lode was supposed to be connected in some degree with the lode worked by the old workers in the Great Wheel Alfred, and when that lode in the Great Wheel Alfred entered the elvan course it became one of the richest lodes in Cornwall. They had the advice of one of Messrs. Taylor's most trusted captains—Captain Hancock—before they took the mine over, and this question was put to him, and Capt. Hancock's observation was that in all his experience he had not known a lode, which had been entirely unproductive above, when it entered the elvan course become rich, but he had seen cases where a lode which was productive in the upper levels became more so in the lower level when it entered the elvan course. The bottom level—the 100—was now in a very promising state. And in the 80, near the west end, they had the richest course of ore they had yet had in this part of the mine, and the 80 fathom level was also productive, and was turning out 2 or 3 tons per fathom. In the 60, after they had driven some distance, they found another lode branching off from the present lode, and going back eastward, but to the south of the main lode on which they were working. That branch lode had been opened upon for a good many fathoms, and it was maintaining a southerly easterly direction, and there was every reason to hope it would prove an additional lode, and one which had not been seen before, and one which would run down the entire set, which it would do if it continued in the present direction. They had made search, and found it at the 70 fm. level, where it was turning out 2½ tons per fathom, and they expected shortly to see it at the 50, going upwards. That was a possible great addition to the value of the mine, but they must not reckon upon it with any certainty, for although now going off in the direction of the south-east it might turn northward again. The meeting with the elvan under Gundry's shaft had caused some delay, but they were now down there very nearly to the depth for another level. The course of ore had continued upwards in the successive levels until they were now up almost to the surface, and within a short distance of grass they had a lode producing 1 ton of ore per fathom, but mixed with a good deal of blende, which the board had turned to account, as the price of blende had improved. During the past year the directors had accomplished part of their intention to establish a thoroughly well-arranged system of apparatus and machinery for dressing the ores. The new dressing-floors were situated to the west of Gundry's shaft, on a piece of ground with a favourable slope; they were now approaching completion, and he hoped that by the end of the year they would be in full progress, and then they would be able to turn to account a quantity of second-class ores, which had been deposited on the surface,

in order to be treated by proper machinery. The completion of that work would finish all that was projected and estimated for in the capital; but they might have to lay out more capital at some future time, and he should like the shareholders to clearly understand that, for if the mine continued productive going in the westerly direction, where the company had a large extent of ground, and if they were as much troubled by the influx of water there as in the other part, it would be necessary to provide a new shaft.

A SHAREHOLDER asked whether the directors contemplated providing a cage, to enable the men to ascend and descend the mine?—Mr. RICHARD TAYLOR said it was a point which the directors had in mind, and no doubt it would effect a considerable saving.

Mr. JOHN TAYLOR said it would effect a saving of about 30 per cent. in the cost of labour; and it would also enable old experienced miners, who knew more about the mine than the younger men, to descend and work in the mine.

A vote of thanks to the Chairman and directors closed the proceedings.

DERWENT LEAD MINING AND SMELTING COMPANY.

An extraordinary general meeting of shareholders was held at Austinfriars, on Wednesday, Mr. S. YORK in the chair.

The CHAIRMAN having briefly stated that the meeting was a formal one to confirm the resolution authorising the issue of debentures, moved that the following resolution be and is hereby confirmed:—

"That the directors are hereby authorised to borrow a sum not exceeding 10,000, upon debentures payable at the end of three years, carrying interest in the meantime at and after the rate of 6½ per cent. per annum, or such other rate as the directors may determine, payable half-yearly, the holders to have the option of taking forfeited shares (4½ fully paid) at 3s. each, reserving to the directors the right to call upon the debenture-holders to exercise such option at any time by notice to that effect should the shares of the company be selling at not less than 3s. per share, such option to be lost upon failure to exercise it within the time limited by such notice. The debentures to be secured by a deed assigning the freehold and leasehold property, plant, machinery, and other effects of the company to trustees for the debenture-holders. The mode of issue, form of deed, and other details to be left to the discretion of the directors."

This having been passed, the proceedings terminated with the usual compliment to the Chairman.

WEST SETON MINING COMPANY.

A four-monthly meeting of adventurers was held at the mine on Oct. 31, the purser (Mr. T. PRYOR) presiding. The accounts showed that the adverse balance had been reduced to 9637 15s.

Capt. RUTTER said that the lode never looked so well as it did now since the mine was started, for it seemed to be gathering strength as it went down. The lode had always been a good one up to the present time for copper. Something like 100 years ago a start was made to work it in the Old Pool Mine, and subsequently East Wheel Seton and the eastern part of the North Roskar, and then Wheel Seton, and now in West Seton. It was the leading trunk lode of the county, and became rich in depth for copper ore, and he had no doubt it would become very profitable for tin. There was an impression that lodes would not become permanently profitable for tin unless they were in granite, but the contrary was proved in the cases of Wheel Vor and Wheel Peavor, the latter being one of the richest in the county. Not only was the lode in West Seton becoming more productive but as they went deeper it increased in value. So long as the ground did not change itself or divided off into branches in their mine there need be no fear as to its productiveness. He added that the greater portion of the tin they were raising from one lode was almost sufficient to pay the expenses of the concern; and there were many other excellent points in the mine. He concluded by congratulating the shareholders upon the promising condition of the mine generally.

The CHAIRMAN said that during the quarter they had been selling their tin upon the average at 44½. 10s. per ton, as against 38½—the average price made at their last meeting in July. The profit this quarter amounted to over 6000.

Mr. HUTCHINSON elicited from Capt. Rutter that the 177 was far better than the 165, although they discovered some excellent points in the 165. In the 177 not only was there some good ground, but the quality of its products was superior to that of the 165, and was worth some thousands of pounds.

Mr. MICHELL in moving the adoption of the reports, considered that the mine was in an eminently satisfactory position.—Mr. RULE stated that Capt. Charles Thomas, of Cook's Kitchen, who had inspected the mine at his invitation, had spoken of it in flattering terms. From the 165 to the 177 they had over 30,000, worth of tin to come away, and by the time they reached the 190 their shares would be worth no small amount.—The reports were then adopted.

BWLCH UNITED—SPECIAL REPORT.

SIR,—Agreeably with your request, I very carefully inspected these mines yesterday, and now beg to tender you the following remarks thereon:—

The position, the great productiveness of the veins, and the very large returns made therefrom, have been often explained, and a recapitulation of them is unnecessary. I shall, therefore, confine my remarks to what I advise being done to carry on future workings. I found on examination that most of the productive ground has been stoped away over the 30 fm. level. At the 40 fm. level, about 50 fms. east of Ritchie's engine-shaft, there is some ore ground standing in the back which can be worked on tribute so as to leave a fair margin of profit; and as by adopting this system of working on many occasions important discoveries are made, I would advise your trying it here. Most of the ore ground as far as has yet been opened out over the 60 fm. level has been stoped away, but in the bottom of this level there is a very rich course of ore left for a distance, including all the bunches of ore opened for 80 fms., with 12 fm. backs, which will produce 30 cwt. of rich silver ore per fathom. This, the 60 fm. level, is well ventilated by rises put up from the 70 fm. level, and you are now in a position to work any portion of this ground you may choose. I would recommend for the present that eight men should be placed on the most westerly stope, which has been already stoped for about 8 or 9 ft. under the level, and left rich; and, in order to carry on this work with efficiency and economy, that you should put down a small 4-in. lift, 3-in. working, and attach a small wire rope to the rods in the engine-shaft, and thus keep the stopes dry by your present pumping wheel. This little lift should be kept in every mine of importance, as it would at any time enable you to work any short rich bunches in any position, and thus avoid the cost and inconvenience of taking away any dead or unremunerative ground.

I find the 70 fm. level has to be extended about 3 fms. further east to enter the rich and long course of ore before it; the lode in the present end is letting out much water, and producing good stones of rich lead ore, with vugs coming in, so that there is a moral certainty of this in a few days entering the ore ground left rich in the eastern courses of ore in the bottom of the 60; this end I would, therefore, press on by six men so as to open out further stope ground, and in three months you will be able to break down large quantities of ore from this place, and continue to increase returns and profits until ore ground in abundance has been laid out at your deeper levels. The shaft has been sunk from the 70 to the 80 fm. level, where the eastern level has been extended 9 fms.; the lode in the present end is producing excellent stones of rich silver-lead ore, and there is not the shadow of a doubt in my mind when this level is extended both east and west that it will open out very rich courses of ore at the two points. From the 80 the shaft has been sunk to the 90 fm. level, where only 7 fms. of ground has been driven on a promising lode west. From the 90 the shaft has been sunk to the 100 fm. level, the deepest point yet attained, where a short cross-cut is being driven to reach the lode, and preparations made for extending the levels east and west by rock-drill.

I would strongly recommend the Eclipse Drill being tried, as I, in company with your manager, had the pleasure of meeting Mr. Parnell (connected with this drill), and his explanation of the method of working this drill and air compressor was satisfactory, to me at least, in the highest degree. If, therefore, you adopt it your men will have a good supply of pure air, and I believe it will open out four times the quantity of ore ground that could be done by hand power, so that you would in a comparatively short space of time pass through your rich courses of ore seen in the 60, and which you will be opening out in the 70 east, and at any time you may think proper. You may place a drill in the 80 fm. level so as to ensure any reasonable quantity of ore you may think proper to return. I would here remark that I am most agreeably disappointed at finding your mine in such an advanced state of prosperity, as I look upon your immediate success as a certainty. I do not think it desirable to go into estimates of returns and profits, as the management is placed in very able hands, and one who will use judgment and strict economy in carrying out the working generally of the mines.

A great point will be with you to sink the shaft as soon as possible to the depth of the Goginan deep adit level, or 20 fms. deeper than you are at present, and to drive westward to their boundary, where I have been informed on authority I can place reliance on that their adit has been extended, at any rate. I believe their adit will under-water the whole of your workings, and make yours an adit level mine—an event that would in my estimation double the value of your now most valuable property. You will then have all your pitwork and

other materials ready for sinking the mine 100 fms. deeper without the extra cost for materials of one penny. You will have to put your crushing power and dressing floors into proper order, and this can easily be done at a small cost; and I would, in conclusion, advise your adopting Mr. Nance's method of slime dressing, by which all your ore will be saved, and a saving of 50 per cent. in labour as well as 80 per cent. in cost result therefrom. ABSALOM FRANCIS.

Goginan, Aberystwith, Oct. 30.

BWLCH UNITED MINES—SPECIAL REPORT.

SIR,—It is my pleasing duty to advise you of an important discovery yesterday in our bottom or 100 fm. level, driving east of Ritchie's shaft, in which the drirage (which was being made obliquely) has met the north lode at 3 fms. from shaft. We have cut into it 18 in. to 2 ft., with more standing, and so far it is crystallised quartz, carbonate of lime, and an excellent mixture of silver-lead ore in cubes and other forms, altogether a fine looking lode. I attach great importance to this discovery, as we have a section of 20 fms. of unwrought ground overhead, and the improvement is so strongly marked at the increased depth that there is yet every probability of further improvement as our workings attain the depth of the Goginan Mine deep adit. I have to-day made arrangements for commencing to stope at the 60.—Pontereyd, Nov. 6. NICHOLAS BRAY.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week markets have been buoyant, owing to the signs of a considerable revival in all departments of trade, and that more prosperous times have been established may be regarded as an accomplished fact. That there is very little and, in many instances no, reaction after the late great rise proves that the upward tendency in prices is well established, and it could not be otherwise, looking at the confidence felt in the revival of trade holding good and increasing; capitalists are, therefore, seeking out investments in sound mining and mineral concerns at present selling at unduly depressed prices, because these are all certain not to be any cheaper, and to have a great rise.

In shares of coal and iron companies, the movements during the week comprise advances of 15s. per share on Ebbw Vale, 2s. on Scottish-Australian (new), and 6d. on Marbella; while Glasgow Port Washington, A, are 10s. lower; ditto, B, 7s. 6d.; Clyde Coal, 7s.; Monkland (pref.), 5s.; Omoa and Cleland, 2s.; and Benhar 1s. Though there is little change in these shares more particularly dealt in on the Scotch markets, a very material rise can be shown in the shares of Yorkshire and North of England concerns. Nothing of importance has occurred to alter the favourable condition of the iron trade in all departments both in England and Scotland, there being a large business doing, and a better feeling everywhere. It is said that the whole output of the West Cumberland Company is sold forward 15 months. Some of the old established Carron Company's stock is at present on the market. The Steel Company of Scotland shares have just begun to be officially quoted, and opened at 9, advanced to 10½, being now about 10½ (5d. paid); it is a very good company, and likely to turn out a good concern to the holders, though shares are high enough for the present dividend of 6 per cent. The meeting of the Scottish-Australian Company will be held on Nov. 17. Benhar have been firm all week from 4½ to 4¾, with an improving appearance. Andrew Knowles and Sons are at 7½ ds. Ashton Vale, 6. Bilbaw, 16; ditto 6 per cent. pref., 25. Bolckow, Vaughan, A, 67 to 68; ditto, B, 37; ditto, stock, 115½; and ditto pref., 39½. Chillingham, 80s. to 90s. Clyde dropped from 78s. to 67s. 6d., but are now rising again at 80s. Cardiff and Swansea, 30s. to 35s. Charles Cammell and Company, 8½ ds. Carnforth, 81. Conselt, 19½. Darlington, 5½. Ebbw Vale, 6½ to 7½. Great Western, 45s. John Bagnall and Sons, 25s. John Brown and Company, 8 ds. Llynvi, Tondur, and Ogmore, 10. Marbella, 40s. to 45s. Monkland, 50s. to 55s.; ditto, pref., 5 to 5½. Muntz's Metal, 13. Nant-y-Glo and Blaenau, pref., 23½ to 23¾. Nerbudda, 7s. 6d. Newport Abercrombie, 5½. Omoa and Cleland, 22s. to 23½. Parkgate, 70s. ds. Pelsall, 8½ ds. Rhymney, 21½. Sheepbridge, 22 ds. South Wales, 90s. Staveley, B, 62s. 6d. prem. Thip's Gwaver Hall, 35s. to 45s. Ulverston, 4. West Cumberland, 9 ds. Whitehaven Iron, 80s. to 90s.

In shares of foreign copper and lead companies business quiet. Tharsis (7½. paid), are 5s. lower; ditto (10½. paid), 2s. 6d.; and Rio Tinto, Five per cent., 1s. 3d.; while Yorke Peninsula, pref., are 1s. 3d. higher. Tharsis declined to 28½, but have since been at 29. Alamillos, 35s.; Cape, 31 to 32; Copiapu, 13 ds.; English and Australian, 1½; Fortuna, 95; Linares, 5s.; New Quebrada, 63s. 9d.; Panulillo, 5s. higher, at 65s.; Rio Tinto, Five per cent., 82; Yorke Peninsula, ordinary, 5s. to 6s. 3d.; ditto, pref., 17s. to 18s.

In shares of home mines there has been more business doing. The metal markets have been unsettled, but are now quieter and better. The principal demand has been for tin shares, and the tendency of prices has, therefore, been upwards, though the prices of numerous shares will be double what they are now when the general public realise the genuine and permanent rise that has been established in the metal. Most of the Cornish mines that have struggled through the depression of the past five years could pay a respectable dividend with black tin even at 50½ per ton, so it is apparent their prospects with such a rise in the metal are splendid. It is said West Fildice will be restarted soon, with the shares of the late Sir F. M. Williams placed in good hands. Shares in Penhall, adjoining Wheel Kity, are thought safe to buy at ¾ to 1. Copper mines are rather hanging fire. Glasgow Caradon at 24s. to 26s. It appears a good deal can be said in favour of East Orebor, and there is no doubt it is a better property than was thought a few weeks ago. The shares are said to be well taken up, as many Wheel Orebor shareholders are in it. The sale by East Craven Moor of 100 tons of lead ore realised 1013½. 15s., and South Darren sold 50 tons at 18½. 12s. 6d., being an advance of 38s. on previous sale. Frongoch allotted the whole of the reserve shares, so that the capital of 20,000, is now all issued. Carn Brea, 57½; Cambrian, 2; Cook's Kitchen, 4; Cwm Brynno, 1; Devon Consols, 4s. to 4½; Dolcoath, 54; Drakeville, 1 to 1½; East Chiswick, 2½; East Caradon, 23½; East Lovell, 2½; East Van, 3½; Gawdon, ¼ to ½; Great Laxey, 18½; Great Wheel Eleanor, ¼; Grogwinon, 3½; Herodfoot, ¼; Hington Down, ¼ to ½; Killifreth, ¼ to ½; Lovell, 3; Marke Valley, 1½; Mwyndy, 2; Parys Copper, 18s. 9d.; Pateley Bridge, 1; Red Rock, 7½; Roman Gravel, 11½; South Caradon, 58; South Crofty, 7½; South Condurow, 15; South Frances, 12; Tankerville, 5½; Tincroft, 15½; United Van Consols and Glyn, ¼ to ¾; Van, 22; West Seton, 52; West Bassett, 10½; Wheel Bassett, 3½; Wheel Kity, 3; Wheel Jane, 5½; Wheel Peavor, 16 to 17; Wheel Ury, 1½.

In shares of gold and silver mines Richmond have advanced 12s. 6d. per share on a dividend of 7s. 6d. per share being announced; this week's run is 340,000. It is announced that coupons on the Eberhardt Company's debentures are being paid. The St. John del Rey produce for second dividend of October, 9500 oits., has averaged 7½ per ton. The Placerville Gold Quartz Company has crushed 170 tons, yielding 2130. Rossa Grande shares should not be neglected at about 2s. 6d.; though operations have been suspended at the mines for some considerable time for want of capital it is probable, since there is more disposition to speculate in mines, that they may be able to make arrangements for resuming work. It is expected that the West End shares will be dearer after the meeting on the 11th inst. Australian Mines are 4s. to 6s.; Colorado, 3s. 3d.; Doña Pedro, 10s. to 13s.; Exchequer and Emma, each 2s. 6d. to 5s.; Flagstaff, 7s. 6d. to 10s.; Frontino, 52s. 6d.; I.X.L., 4s. to 6s.; Javali, 5s. to 7s. 6d.; London and California, 13s. 9d.; New Zealand Kapanga, 7s. 6d.; Port Phillip, 9s. to 10s.; South Aurora, 4s. to 5s.; Santa Barbara, 39s. to 41s.; Sierra Buttes, 38s. 9d.; United Mexican, 55s.

In shares of oil companies Broxburn have advanced 12s. 6d. per share, and Dalmeny, 5s.; while Young's Paraffin are reduced 5s. Uphall, 2s. 6d.; and Oakbank (new), 6d. Young's Paraffin have been steady from 12½ to 13½; Runcom Soap, 10s. ds.

In shares of miscellaneous companies the principal alteration is an advance of 6½. 10s. per share on London and Glasgow Engineering and Iron Shipbuilding shares, due to the great revival in the Clyde shipbuilding trade, which has assumed important dimensions. The Compagnie Generale Transatlantique have contracted for eight steamers, of 1750 tons each, with three firms on the Clyde, to be completed in seven months and a half. Earle's Shipbuilding are at 21 ds.; Milner's Safe, 8; Palmer's Shipbuilding, B, 8½ ds. Prices of wagon companies shares are—Birmingham, 14; Bristol, 55 ds.; Bristol and South Wales, 6½; Gloucester, 8; Metropolitan, 60s. prem.; Lancaster, 4; Midland, 10; Railway Carriage, 90s.; Swansea, 40s.; United States Railway Stock, 16½; and Western, 50s. A large business has been done in shares of chemical companies. Law's, preference and ordinary, are steady, the latter about 6. Langdales higher, at 65s. to 70s.; and Newcastle 5 to 5½.

PANULILLO COPPER COMPANY (Limited).—It will be observed that the report submitted at the annual meeting of this company on Tuesday shows a decided improvement on the accounts of many years past, and the directors hope before next meeting to declare an interim dividend. The regulus made amounted to 6321 tons, containing 2825 tons of copper, and realised \$12-80 per quintal metrico. The reserves have increased to over 1,000,000 quintals.

GLASGOW PORT WASHINGTON IRON AND COAL COMPANY (Limited).—The report of the directors to be submitted at the general meeting of this company to-day states their prospects are brighter than ever before. The iron trade at home and in America has much improved, and they have participated in the improvement through having sold a large portion of the pig-iron on hand since the books were balanced on July 31, at prices over last year's valuation. As there seems a fair prospect of carrying on the works successfully, one of the directors and the secretary have gone out to America to make the necessary arrangements for putting one or both furnaces into blast if deemed prudent. The directors may, therefore, require more capital, and are taking powers to issue 25,000, in 5 per cent. debentures. They are taking estimates for forming a short railway through their property, so as to form a connection with the Marietta, Pittsburg, and Cleveland Railway. This will give them communication with several business centres, and afford a cheaper mode of bringing their minerals from the Wyandt and Dallas properties.

GLOUCESTER WAGON COMPANY (Limited).—The last annual report of this company stated they had done a larger amount of work than in the preceding year, but the wagon rents, upon which their dividends mainly depend, were less, and had still a downward tendency. Assisted by strict economy a larger dividend than 4 per cent. had been earned, but as trade appeared uncertain they restricted the payment to that rate, 5000, being added to guarantee fund, and 2600, carried forward. The fire they had was rather a fortunate affair, as being fully insured they were

able to replace their wooden buildings and old machinery with brick buildings and the most approved machinery. The result is that their new saw mills and joinery works are, perhaps, the best in the kingdom, and able to carry out orders to any extent, efficiently and economically. This company has now to repair and maintain 12,947 wagons, which includes 4182 not their own property.

GOLD IN ROSS-SHIRE.—According to the Inverness Advertiser, gold has lately been found on the Ardross and Balnagown properties in the Fearn district, on the Struy range of hills. The prospectors found a fair specimen, but it is not stated whether it can be got in sufficient quantity to pay for the labour of finding.

HALKYN DISTRICT MINES DRAINAGE COMPANY.—Colonel Beaumont, M.P., one of the directors of this company, writes that the water of the district is now falling so satisfactorily that there is no doubt about the success of the scheme. The meeting of the Rhosmor Mine shareholders passed off well. All were greatly encouraged, and the manager reported the lead to be now covered by only 4 ft. of water. The shares are nominally higher at 3½, but it would be difficult to get them at that, as the general opinion at the meeting seemed to be that they will rise to 6½ immediately. Rhydalun Mine is improving, and shares steady at 10½. An important discovery is said to have been made at Gwernymynydd Mine, and shares are up to 90s. The Drainage Company's shares are at 11½, and Deep Level at 3½.

The following calculations show the yield per cent. on money invested at present prices in the shares named, based upon the last average yearly dividends being maintained. In coal and iron companies Arncliffe would yield 6½; Bolekew, Vaughan, and Company (stock), 4½; Cairnstable, 14½; and Muntz's Metal, 8½. In oil companies Dalmeny would yield 4½; Oakbank, 9½; Ditto (new), 9½; Price's Patent Candle, 8½; Uphall, 4½; and Young's Paraffin, 8½. Phospho-Guano shares would yield 3½; Scottish Wagon, 5½; ditto (new), 5½; Tharsis Sulphur and Copper (old or new), each 5; and United States Rolling Stock, 5½.

Capital.	Dividends.	Description of shares.	Last price.
Per share.	Rate per cent. per annum.		
£10	£5	COAL, IRON, STEEL.	
10	5	Arncliffe Coal (Limited).....	6½
10	5	Bolckow, Vaughan, and Co. (Lim.).....	43s.
100	60	Cairnstable Gas Coal (Limited).....	7
10	10	Chillington Iron (Limited).....	82s. 6d.
10	10	Clyde Coal (Limited).....	71
23	20	Ebbw Vale Steel, Iron, and Coal (Lim.).....	6½
10	8	Fife Coal (Limited).....	75s.
10	10	Glas. Port Washington Iron & Coal (L.) B.	65s.
10	10	Lochore and Capelmeir (Limited).....	24s.
10	10	Marbella Iron Ore (Limited).....	42s.
10	10	Monkland Iron and Coal (Limited).....	54s.
10	10	Ditto, Guaranteed Preference.....	5½
100	100	Nant-y-Glo & Blaenau Ironworks pref. (L)	23
6	6	Onna & Cleland Iron & Coal (L. & Red.)	22s.
1	1	Scottish Australian Mining (Lim.).....	42s. 6d.
1	10s.	Ditto, New.....	20s.
Stock, 100	nil	Shotts Iron.....	70
		COPPER, SULPHUR, TIN.	
4	4	Canadian Copper and Sulphur (Lim.).....	12s.
10	7	Cape Copper (Limited).....	31s.
1	1	Glasgow Caradon Copper Mining (Lim.).....	25s.
1	15s.	Ditto, New.....	25s.
10	9½	Huntington Copper and Sulphur (Lim.).....	39s.
4	4	Panulillo Copper (Limited).....	65s.
10	10	Rio Tinto (Limited).....	7
20	20	Ditto, 7 per cent. Mortgage Bonds.....	19
100	100	Do, 5 p. c. Mor. Deb. (Sp. Con. Bds.)	82½
10	10	Tharsis Copper and Sulphur (Limited).....	28½
10	7	Ditto, New.....	19½
1	1	Yorke Peninsula Mining (Limited).....	6s. 3d.
1	1	Ditto, 15 per cent. Guaranteed Pref.....	17s. 6d.
		GOLD, SILVER.	
1	1	Australasian Mines Investment (Lim.).....	5s.
5	5	Richmond Mining (Limited).....	9½
		OIL.	
10	8½	Broxburn Oil (Limited).....	17
10	7	Dalmeny Oil (Limited).....	43s.
1	1	Oakbank Oil (Limited).....	43s.
1	5s.	Ditto.....	10s.
10	10	Uphall Mineral Oil (Limited) A.....	7½
10	10	Ditto, B Deferred.....	10
10	8½	Young's Paraffin Light & Mineral Oil (L)	13
		MISCELLANEOUS.	
50	25	London & Glasgow Engineering & Iron Shipbuilding (Limited).....	24
7	7	Phospho Guano (Limited).....	5½
10	10	Scottish Wagon (Limited).....	9
10	4	Ditto, New.....	67s. 6d.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them, and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, Nov. 6.

FOREIGN MINING AND METALLURGY.

The blast-furnaces of the John Cockerill Company produced in 1878-79 some 33,383 tons of pig. The corresponding production in 1877-78 was 31,200 tons. A reduction of 1s. 10d. per ton was effected in 1878-79 in the cost of production; on the other hand, the average sale price experienced a reduction of 1s. 8d. per ton last year. The profits experienced accordingly a slight increase last year. The stock of pig on hand at the close of June, 1879, was 10,105 tons, as compared with 2847 tons at the close of June, 1878. In consequence of the recent considerable advance in the price of English Bessemer pig the company has been increasing of late its appliances for the production of similar pig. During the past financial year the company's foundries have been well supplied with work, but the profits realised were scarcely so good as in the preceding exercise. The quantity of steel rails sold by the company in 1878-79 was 41,776 tons, as compared with 55,816 tons in 1877-78.

The Belgian iron trade appears to be gaining additional strength from day to day. Notwithstanding the advances which have been made in tariff the rolling-mills are not accepting many new contracts, as they have as much work on hand as they care for for the present; on the other hand, intending purchasers urgently solicit them to undertake fresh orders. The production has been generally increased about 25 per cent. One establishment in the Liege basin, which produced only 1400 tons of iron per month in girders and merchants' iron, is now boldly making 2000 tons per month, and if the present firmness in the Belgian iron markets should continue it will soon still further extend its operations. Another smaller establishment at Charleroi, which had produced on an average 800 tons per month, has just carried its production to 1300 tons per month. It is more especially fish-plates for Holland, Spain, and Italy which have occasioned the additional production. There appears to be a general impression that the winter will not witness any reduction in prices, having regard to the orders and engagements at present on hand. Business is reported to have been done in steel axes at 8½ per ton. A contract for a small quantity of additional rolling-stock is about to be let for the Belgian State Railways.

Deliveries of coal have become so important in Belgium that rolling stock has begun to run short upon the Belgian railways; this is the second time during the last five or six weeks that this result has been noted. Coal for domestic purposes has shown a good deal of activity, and is generally tending upwards. This rise is expected to acquire shortly more serious proportions, and precautions are being taken accordingly in a serious fashion. Belgian coalowners are evidently confident as regards the future, as they refuse to enter into long-term contracts even at an advance of 10d. per ton upon the rates current two months since. An adjudication for coal required for the Belgian Navy during 1880 has been postponed to a date to be fixed hereafter. A meeting of the principal coalowners of the Ruhr basin, which has just been held at Dortmund, has decided on reducing the extraction of the basin for 1880 to the extent of 5 per cent.

The Hungarian Minister of Commerce has just received tenders for a very large quantity of rails. Krupp, of Essen, tendered upon lower terms than any the German works. The Firming Steelworks and Forges Company has fixed its dividend for the year ending June 30, 1879, at 1½ p. c. per share. Half this dividend was distributed Oct. 31, and the balance will be paid April 30. The St. Etienne Foundries, Forges, and Steelworks Company has fixed its dividend for the year ending June 30, 1879, at 1½ p. c. per share; half this dividend was paid

Nov. 1. The results attained by the Eschweiler (Germany) Minerals Company for 1878-79 afford some little encouragement as regards the future. The company is not enabled to distribute any dividend for 1878-79, but it carries forward a balance of 1125½ to the credit of 1879-80.

The Belgian Metallurgical and Colliery Company has consented to deliver to the Granollers and San Juan de las Abadesas Railway some 350 trucks; this contract was negotiated through the Catalonian Credit Company. A company has just been formed at Brussels for the establishment of a permanent international exhibition at Brussels; the opening of this exhibition has been fixed for May 1, 1880.

In the French iron trade quotations have been generally firm. The Vezin Aulnoye Company (Belgium) produced in the year ending May 31, 1879, 63,545 tons of pig, of which 51,429 tons were consumed in the company's two rolling mills. The profit realised by the company in 1878-9 amounted to 1166½. The charges rendered necessary in the company's works, in consequence of the almost complete suspension of the manufacture of iron rails, have been now completed.

Increased activity has prevailed on the Paris coal market, important orders having been received. If the demand continues upon its present footing an advance in prices is anticipated. A better enquiry is beginning to be noticed for coal for industrial purposes, but prices remain low. In the Nord and the Pas-de-Calais orders are being received satisfactorily, and stocks are everywhere declining. It is not only from Paris that orders for coal for domestic consumption are being received in these districts, they are also coming to hand from the surrounding towns. Everywhere there appear to be apprehensions of a severe and early winter, and those who entertain these apprehensions are naturally anxious to be prepared for all eventualities. Present prices being very advantageous also tempt coal merchants to make purchases, more especially as they know that in November and December quotations will advance. Producers in the Nord and the Pas-de-Calais have also to provide for the rather considerable demand now prevailing for their coal on the part of the proprietors of ironworks and mechanical construction establishments.

CITY IMPROVEMENTS (?)

We turned in the other day to the premises recently erected on the site of the old Green Dragon, in Bishopsgate-street, the last of the old-fashioned hostels of ancient and picturesque London City. The hotel has gone, and with it many happy memories. There are no more the open court and its quaint galleries, the cosy dining-rooms, the excellent dinners, the splendid wines, the able *chefs de cuisine*, the lively serving maids, the generous host and hostess. The comfortable bed-rooms that opened on those long galleries have all been swept away, and the travellers who obstinately refused to be enticed from these comfortable quarters by the seductions of modern hotels have been compelled to submit to the stern decrees of fate, and find their temporary resting places in hotels which are not homes like the dear old Green Dragon hostelry. On the site has risen a huge pile of spacious chambers, divided into suites of offices. They are splendid apartments, with large lights, and approached by a staircase with a gradient so easy that the footsore traveller is beguiled to the "vary towering turrets" without any sense of fatigue. For the City, the man who built this lofty pile is a wonderful architect. Manifestly he has some bowels of compassion and some kind consideration for his ultimate constituents—those who are to use the structure his skill has created. A utilitarian genius such as he should have been the architect of the New Law Courts, then darkness and discomfort had not reigned supreme in that abortive edifice, which will remain to all time a monument to the folly and stupidity of the architects and the people of the nineteenth century.

Beneath the offices a vast cellar has been excavated, below the entire area of the old court yard. It runs back 150 feet from the frontage, and is now filled with wines from every vintage. The spirit of the house still haunts the spot and refuses to be exorcised. Driven from the ancient rooms where so often it has provoked the sound of mirth and hilarity, it has taken refuge in those wine cellars, and there resumes its ancient hospitality. The old habits have found it out, attracted by powerful associations and strong affluities. Here in delightful memories they live the past anew, and revel at the same time in the pleasures of the hour. Thus their joys—they have them double. On the occasion of our visit we saw several of them and knew them well. We might mention names, but for fear, lest we break in upon the sanctity of private enjoyment. But there they sat, men of great experience in mining adventure. Some that we saw have made fortunes in that whirligig of fate, and some have lost them; some have done both, have lost and won, and won and lost again with consistent alternations. One was there who has well won and never lost, but who he is we must not tell, lest he be overwhelmed by the envy of his brethren. It is lucky for the house, we said, wherever he goes is luck; and we cracked with him a bottle of the best champagne and felt happier and more hopeful of the future both for ourselves and the great mining industries of Britain. We looked around, some others drank champagne, and praised its sparkling qualities and purity. Some quaffed their modest port, and some delighted in potent draughts of mountain dew—a drink, as served out here, fit for Hercules or other gods. Such gods were those we saw, mighty to drink strong drink.

Messrs. Lavery and Co., who began their wonderful commercial career in Manchester some years ago or more, have taken this large cellar to carry on a trade on the same principles that have the firm famous and successful. This is the largest of their stores, and it is probably the largest room in England devoted to such a purpose. It is the sixth store the company has opened in London. Here, too—as soon as the British workmen shall vacate the comfortable quarters where they are leisurely fitting up desks, &c.—will be removed the chief offices of the company, for Manchester is no longer a proper place for the headquarters of a business which has so enormously outgrown its early operations. To this branch establishment the company has removed Mr. Child, formerly their manager in Oxford-street, where his uniform tact and urbanity won him the confidence of his employers and the favour of his customers. When at length this appointment was assigned to Mr. Child it was felt by the public that honour had been given to one to whom honour was justly due. His management had already shown both vigour and judgment. His stores are bursting with good wines and other favourite drinks of City men. He has divided the vast area into little comfortable grottoes, so to speak. In each of these a Persian rug is spread, a neat table and arm-chairs stand, and a bright fire burns cheerily in the grate. A little coterie occupies each separate retreat, and there each man drinks his wine and sells his shares or transacts his other business. It just the place for a Manx Exchange, and by the silent but irrefragable law of fitness it seems already to have been so constituted to a considerable extent. A large solid mahogany desk, with ink, good pens, and stationery is provided, and labelled "For the use of our friends," and the centre table is loaded with newspapers, among which is conspicuous the file of the *Mining Journal*—a judicious consideration, which we must not be slow to appreciate.

We need not dwell on the merits of the wines and spirits of the Bodega Company, they are renowned for their purity and comparative cheapness. There is no "fortification," and no base adulteration here. Besides, the completeness of the arrangements for the comfort of visitors demands at least a mention. Tell no one think of this establishment as a dark and dreary cellar—it is a cellar it is true, but simply because it has been formed by an excavation below the surface; at the same time it is a saloon by reason of its cheerful light, its loftiness, and its large dimensions in length, breadth, and height. The unfailing courtesy of the manager and his staff of attendants merits a high encomium, and makes a visit here still more enjoyable. The little recesses improvised by skilful arrangement of piles of cases of wine, &c., are suggestive of the very picturesque and little cosy rooms of the old Green Dragon. Those whose memory of the ancient house survives cannot well pass by the new one, which, Phoenix like, has risen on the ashes of the old.

THE HATTON GAS-BURNER.—An elegant and greatly improved gas-burner is at present being introduced under this name by Mr. R. H. HUGHES, of the Atlas Works, Hatton Garden, and from the manner in which they are now burning in the *Mining Journal* office there can be no doubt that the maximum of illuminating power is obtained with the minimum consumption of gas. The burners are small-sized batwing; but, as they are very accurately cut, and are surrounded by opaline globes, made of special form, to throw down the light without darkening the room generally, the result is in a high degree satisfactory. The price, including globe and fittings, is but little higher than that of an ordinary fish-tail burner and moon, whilst the amount of light obtainable from the latter bears no comparison. Indeed, it is estimated that one of the new burners is equal to any ordinary three-light chandelier, and the claim is probably no exaggeration.

THE DEPHOSPHORISATION OF IRON.—The adoption of the Thomas-Gilchrist process for the dephosphorisation of iron at Messrs. Bolckow, Vaughan, and Co.'s works at Eston, has been followed by its introduction in Germany. Operations have there been carried out by the Hörder Hütten Verein, at their Bessemer works, near Dortmund, in Westphalia, where the manufacture of the basic bricks is also carried out. A very low grade of pig-iron has been used, containing an average of 1.4 per cent. of phosphorus and about an equal amount of silicon. In some charges a white pig, containing nearly 2 per cent. of phosphorus and but little over 1 per cent. of silicon, has been employed. The phosphorus in the steel produced from this pig is reported to average .06 per cent., the silicon in all cases being *nil*. As might be expected, the steel produced is of peculiarly high quality, has in every case rolled and forged well, and has given the most satisfactory results when tested under a falling weight and in the testing machine. It may be mentioned that in no case has there been any lack of heat

in the metal, notwithstanding the low percentage of silicon in the charge. That a very high percentage of phosphorus and a low percentage of silicon are no obstacles to the successful conversion of pig into Bessemer steel of the best quality under the Thomas process is demonstrated by these results.

MATHEMATICAL DRAWING.

The title page of a valuable little volume just published by Messrs. Trübner and Co., of Ludgate Hill, affords a reminder that Sir Isambard Brunel once said "Drawing is the A B C of the architect, engineer, and surveyor;" and that Mr. Redgrave, the Royal Academician, observed—"Drawing supplies us with a power whereby long descriptions and pages of writing are at once superseded, and thus it is a condensed shorthand, as well as a universal language." These remarks being indisputably true, the necessity for a treatise on "Mathematical Drawing Instruments, and How to Use Them" will be fully appreciated. Although the drawing of a straight line or the striking of a circle may appear to necessitate but little care, it is but too quickly ascertained by students that to perform either feat requires both skill and practice. Mr. Hulme having had long experience in teaching drawing and the use of drawing instruments, is well qualified for the task he has undertaken, as he has become acquainted with the difficulties of the novice, and is aware of the lasting annoyance which the contracting of bad habits at the outset leads to. He very truly remarks that the student who provides his own tools is at once met on the very threshold by a difficulty—the choice of a suitable box of instruments. He sees in the shop windows a card of things marked "One Shilling the Set," and on the other hand, in consulting the catalogue of a first-class maker, he finds that even twenty guineas would not buy some of the sets enumerated with such tempting richness of detail. Somewhere between these extremes is the very thing he wants, but where the happy mean may be is a mystery to him.

The thoroughly practical character of the hints which Mr. Hulme gives will be acknowledged by every mechanical draughtsman who glances through his book, and every word will be found useful to the student. No one who has worked for a day with a badly made set of instruments will for a moment doubt the accuracy of his assertion that the surest way of getting value for the money is to go at once to a good maker; his charges will probably seem somewhat high, but it must be borne in mind, in calculating expense, that when the draughtsman has once got a sufficient knowledge of how to treat his instruments to justify him in getting a good set the expense comes once for all, the instruments lasting a lifetime. From engravings of instruments given by Mr. Hulme, it appears that he has selected Mr. Stanley, of Great Turnstile, Holborn, to supply his wants, and we may take the opportunity of here stating that we have long used Mr. Stanley's tools, and never met with boards or instruments which for accuracy and durability at all approach his make, whilst for price the difference for any given instrument seldom exceeds a few shillings, and often is within a few pence, of that charged by inferior makers, whose T squares seldom permit of two consecutive lines being drawn in the same direction, and render the work infuriating and unprofitable. Mr. Hulme gives the minutest details as to manipulation and choice of instruments to perform given characters of work, whilst he is careful to prevent the beginner falling into the too common error of purchasing numerous useless instruments instead of a few necessary and reliable ones. The volume is a valuable addition to Trübner's Young Mechanic Series, and will enable many to become good draughtsmen who would otherwise soon abandon the art in despair.

"Mathematical Drawing Instruments, and How to Use them." By F. EDWARD HULME, F.L.S., F.S.A., Art-master of Marlborough College. London: Trübner and Co., Ludgate Hill.

ENGLISH-GERMAN TECHNICAL VOCABULARY.—A few weeks since the admirable little French-German Technical Vocabulary prepared by Dr. F. J. Wershoven, of Brieg, was noticed in the *Mining Journal*, and the English-German edition of the book then announced has now been issued (Leipzig: Brockhaus—and obtainable in this country through Trübner and Co., of Ludgate Hill), the improvements then mentioned adding much to the value of the book. The character of the vocabulary has already been explained; it is, in fact, a technical phraseological vocabulary, so that a writer well acquainted with his subject, and, therefore, competent to express himself intelligibly in his own language, will have little difficulty in making himself equally intelligible to his German brethren labouring in the same field of science or industry. As Dr. Wershoven has selected his phrases from the writings of Roscoe, Lardner, Lockyer, Stewart, Atkinson, Percy, Stephenson, Bourne, and Rankine, Chambers' Encyclopedia, and the Dictionary of Engineering, there can be no doubt as to the style of expression being that in general use amongst the best writers on the several subjects, while the manner in which the phrases have been translated leaves nothing to desire. A very complimentary preface to the vocabulary has been written by Dr. A. von Kaven, Geh. Reg.-und Baurath, the director of the Royal Technical High School at Aix-la-Chapelle, which shows that its utility and accuracy are appreciated in quarters where the best possible facility exists for estimating its value. The book is one which all technical students and professional men should possess themselves of.

CASELL'S PUBLICATIONS.—The current part of Science for All contains the title-page and index to another volume, in addition to the conclusion of the article of a Piece of Iceland Spar, and articles on Polar Ice, by Dr. E. L. Moss, late of H.M.S. Alert; on Rubies and Sapphires, by Mr. F. W. Rudler, F.G.S., the registrar of the Royal School of Mines; on Weather Telegraphy, by Mr. W. L. Dallas, of the Meteorological Office of the Board of Trade; and on Lodgers and Boarders in Lower Life, by Dr. Wilson. As the number of the volume is not indicated on the title-page each volume may be regarded as complete in itself. Part 35 of Knight's Practical Dictionary of Mechanics extends from the end of the article on Heating Apparatus to the beginning of the article on Horizontal Lathe. The Great Industries of Great Britain, part 22, contains Cotton, 21—calico bleaching and Turkey red dyeing, by David Bremner; Industrial Art, 5—second paper on artistic use of metals, iron and steel, by J. F. Robertson; Foreign Rivalries, 10—earthenware and glass, by H. R. F. Bourne; Hemp, Flax, and Jute, 21, by David Bremner; Shipbuilding, 22; Wool and Worsted, 20—the finishing processes, by William Gibson; and Health and Disease in Industrial Occupations, 8, by Dr. Rabagliati. The History of Protestantism extends from the chapter on the last scenes of the Bohemian Reformation to that on Luther's visit to Rome, and what he learned there.

WATER FOR NOTHING.—An interesting little pamphlet under this title has just been issued by Mr. Shirley Hibberd, F.R.H.S. (London: Effingham Wilson, Royal Exchange), the object of which is to show that by the systematic storing of rain water much economy will be effected, as the cost of carrying it away by drainage and the cost of obtaining water for domestic purposes will be at the same time saved. "Whatever may be the course of legislation on this subject," he remarks, "or the policy of the companies to avert legislation and keep affairs safely in their hands, it is certain every man has at his command, to a very great extent, the means of securing an abundant and perfect supply of water by the simple process of utilising the rainfall. In this year of agitation on the subject the rainfall has been more copious than has been known for many years, and has been almost wholly allowed to run to waste. There has been 'water, water, everywhere, but not a drop to drink.' Nor is the wanton waste in rainfall the only sin society has to answer for in the presence of a bountiful Providence. The cost of its removal by means of channels and drains is enormous, and the addition of its rainfall to sewage proper renders the utilisation impossible by reason of its unmanageable bulk and excessive dilution. Thus the rain we refuse to catch and keep adds to the burden of the ratepayer by every drop that falls, and is made the means of conveying to the sea, to be lost for evermore, those constituents of the soil that are the causes of fertility." Mr. Hibberd proposes the formation of artificial watersheds on the cheapest land obtainable near small towns and villages, and the collection of the rain water by methods which effectually exclude the access of animals that might pollute the water. Examples of the utilisation of local rainfall are given, and a series of tables to aid in determining the proper sizes and capacities of pipes, tanks, filters, &c.; this part of the book will be of service when the determination has been taken to supply the household with what Mr. Hibberd describes as "heavenly drink." The pamphlet is well worth reading.

Mr. P. R. Scott Laing, lately assistant to Prof. Tait in the Natural Philosophy Chair in Edinburgh University, has been appointed by the Crown to the Mathematical Chair in the University of St. Andrew's, vacant by the translation of Prof. Chrystal to Edinburgh University.

ON THE USE OF POWDER IN MINES.*

BY MR. RICHARD JOHN BARNES, M.R.

In May last year there was a discussion in this room on "The Lighting of Shots." I was sorry I could not attend, as it is a very important subject. The use of powder in mines under the Coal Mines Act of 1872 is, I consider, also an important subject, and the main object of this paper is to have the matter well considered and defined. I am not sure that there are any collieries working which under the Act can use powder in the daytime—in ordinary working hours. All or nearly all mines give off fire-damp, and though some require very much less air than others, yet when "straight work" is in progress extensively there is sure to be a good deal of "blue-cap" visible. My rule for years past in driving "straight" work where powder has been used has been to allow an amount of air of 1000 (average) cubic feet per minute per place, and not allow the air to go into more than 10 places in one split.† I have known many cases where 3000 and 4000 per place have been requisite, and I have seen over 5000 cubic feet per minute forced within a few feet of the face, and still a "blue cap" would show in the cutting. It is not unusual for a split of air trailing its long round through 20, 30 or more places, slightly freshened up here and there on its way, to foul before reaching several of the last, yet no "blue cap" shows either in cuttings or returns, most likely because it is so mixed with a "brown cap." Which, then, is the purest air for either place or workmen? By the Act a thoroughly well-ventilated mine, with sufficient splits to give every 10 places air to themselves, cannot use powder in the day, whilst an ill-ventilated place with a split to every 30 places may do as its owners like, and poison everyone working there. And now comes the time for asking what is meant by "a panel," and in a large pit how far does the finding of a little gas in a working place prevent the owners from using powder, except when ordinary workmen are out of it. The importance of this is very great, and in my opinion worth discussion. Take a large pit extending 2000 yards each way from the shaft. Say gas is found in extreme levels of one side, and out of those levels there is a district to the rise, which to a certain point has its intake and return common with the level district. Have the whole side and rise workings to be prevented from using powder? I say not. I say a panel is a separate split of air going from and leading to main returns, and, therefore, the restriction only applies to the workings in the one split of air wherein gas may have been seen. Where "pipe" ventilation is used, and each working place has its own split, gas found in one such place would only lay that one place off from the use of powder (always providing there was no quantity of gas to make the pit dangerous). I believe many mining engineers take my view of the reading of the Act, but I somehow think powder has been prohibited in places rather against such view, and I would much like to hear some decided opinion about this. At the collieries (Birley) of which I am in charge in one of our pits, raising about 900 tons per day, this is very important, inasmuch as we occasionally find a little gas in the goafs, and were we to have to use powder at night only the mine could not be worked, and it is to the best of my thinking very safe. The system I have named, of airing fiery mines and using powder too, I have never yet known to fail, nor in many thousands of straight places driven have I known the slightest accident to happen. What the result has been of places aired by the same air going through 14, 20, or more we most of us know. I have known cases of blown-out shots, but beyond levelling the brattice of the place I never saw anything done to hurt adjacent places. To stop this I some years ago, before the Act of 1872 came in force, made a rule; I would never allow any shot to be fired without the fireman had previously seen and examined the drill-hole, and satisfied himself that such hole neither was in the roof nor in the fast at the side, nor drilled beyond the holing. This rule I have had carefully carried out, I may say, since 1870, and it has often been a matter of surprise to me that it was not made a "Government Rule." I believe it to be most important, and if the air be at all loaded (in one of the long round splits I have mentioned), and the mine at all dusty, a blown-out or fast shot may do incalculable harm. From my experience of colliers in Lancashire, I doubt there are many collieries where this simple rule is neglected. I speak confidently, because so many colliers said "it was never done where they came from," and many is the shot that has not been fired because the collier had put his cartridge in and "stemmed" against orders before the fireman came. I do not say there are not collieries where this is done, but simply there are a good many where it is not done.

One great reason against long splits is where much dust exists on the road and in working places such a great danger arises from a blown-out shot, or a very slight explosion of gas, being by such cause augmented into a heavy explosion. Many here know how the bodies of poor fellows found after an explosion are covered with dust, which often fills eyes, ears, and mouth. Therefore, the more dusty the mine the more I would split my air (remembering not to get such splits as would be too feeble for their work). These remarks may hardly bear upon the points I wish you to consider, but I make them before advancing an opinion I have, and which may be new to some of you—I consider an Inspector of Mines ought to be left to judge whether a mine be safe for powder, which judgment would be guided by his knowledge of the splits, &c., and of the mine, and not by the words of the Act with regard to the "blue cap." I believe with plenty of air, judiciously used (of course, this means good power, good airways, and careful overmen) powder can be used safely in any mine not subject to outbursts; that to prohibit it in all mines because it may have been abused in some would be unjust, and raise grave questions as to abandoning very many seams. If the questions I have raised are considered worth discussion I shall be glad to hear your opinions upon them. It is a matter of regret to me that I cannot attend to read this myself, but circumstances quite prevent me.

Mr. HIGSON said that so far as he was able to appreciate it, the paper seemed to deal more particularly with the question as to whether it was the duty of an Inspector to determine if a mine were safe for the use of gunpowder or otherwise. It seemed to him that it would throw a considerable onus upon the shoulders of any Inspector who had to so determine whether a mine was safe or not, and probably the Inspector might not like to have that onus resting upon him. As regarded what might or might not be "a panel," he did not think anyone was very clear about the law; and, probably, until the question was legally settled by some trial which would form a precedent for all future cases it would remain undetermined. He believed, in the case of a mine which was worked one district with powder and another without, that it was absolutely requisite to give official notice of such action, and no doubt the Legislature had allowed considerable latitude to Inspectors in determining what was really a panel. He believed that practically what Mr. Barnes suggested as being the best course had been, up to this point, in the hands of the Inspectors, if any such case had presented itself to them.

Mr. GRIMSHAW said that he, like many others, had been greatly puzzled to decide what a panel really was. In the old time—say, in John Buddle's time—they might take the ideal panel as being a level course, a jig driven out of it, the air split at the top, and returning and passing over a crossing the counter level for one sub-split, returned directly for the counter level for the other. But the question now, it seemed, was whether a separate split meant a panel or not; whether a panel needed to be distinctly separated from another panel, or whether the roads and works might be intermixed and simply ventilated by different splits. He did not know who was to decide this point; and with regard to Mr. Higson's observations, he certainly thought, if he were in an Inspector's place, he should decidedly object to have the onus of deciding the question which was raised by the paper placed upon his shoulders.

Mr. HIGSON described, by a rough drawing on the black-board, his definition of a panel, which, in so many words, required that the intake splits be made in the immediate vicinity of the shaft, and remain separated by natural strata until they reach the main return in the immediate vicinity of the upcast shaft. Where a simple over-casting separated the various air-currents in any mine, he should not think that those were distinct and separate panels, although they were, or might be, distinct and separate splits of air. Where, how-

ever, they got the living coal separating the return and the intake, the various splits of air-currents he should say might properly be called distinct and separate panels. He did not know whether that was the generally recognised acceptance of the term.

Mr. GRIMSHAW: Supposing you are working on the level from the downcast pit A, would not you call it a panel if that level was continued? These are dip workings exclusively.

Mr. HIGSON: The principle may be carried out to a very considerable extent by having over-casts and under-casts where the thickness is more than 10 yards, if you choose to indulge in that luxury.

Mr. GRIMSHAW: But suppose the air is split and goes down the brow B, and a certain portion goes along the level and ventilates the rise, would not you call that a separate panel equally with the dip panel?

Mr. HIGSON: No; if that stopping were destroyed there would be communication between the two air currents.

Mr. GRIMSHAW: Would you work in the rise and the dip and make them into separate panels in case anything happened?

Mr. HIGSON: It might be possible. But I remember an instance where there were separate panels, and where the violence of an explosion—in spite of 300 yards of solid coal—passed up this district, and across the pit, and went down into this panel (referring to the diagram), causing great mischief.

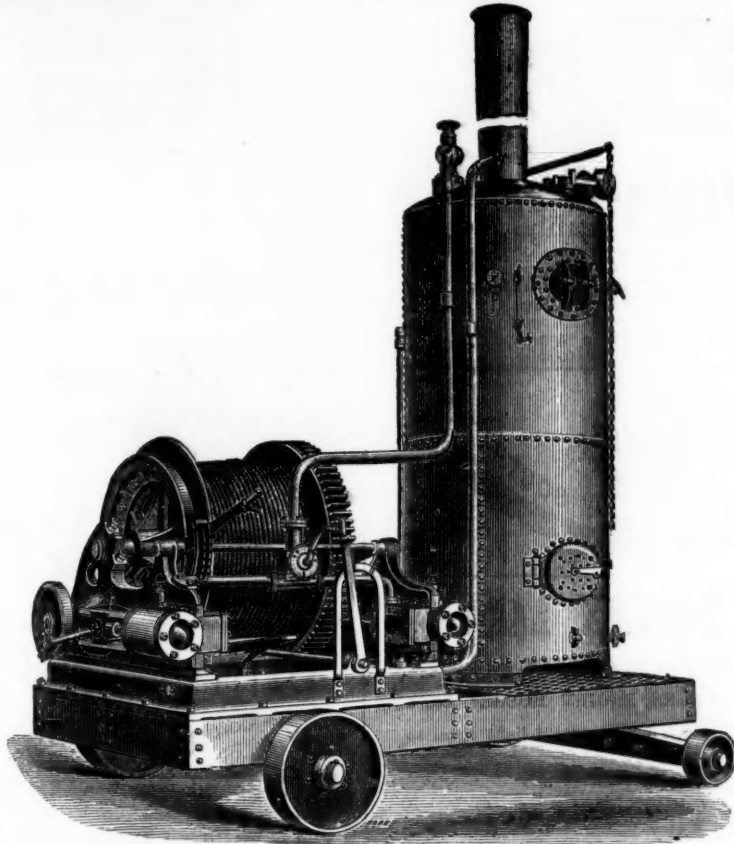
Mr. BURROWS said he quite agreed with what the previous speakers

had said as to the impracticability of the Government Inspectors deciding in any way. Many times one could not quite make up one's own mind, knowing all the circumstances of the case, and the Inspector—unless he spent most of his time at the pit—would be in a still worse position. The question of "panels" had cropped up two or three times in his experience, and he thought in one case the judgment of the Inspector and his (Mr. Burrows's) own opinion rather differed. In fact, he was not quite sure what was a panel and what was not. The deciding of what constituted the "blue cap" of General Rule 8 should, he thought, be left in a great measure to the common sense of those who knew all the circumstances of the case. They could not draw any hard and fast line.

Mr. GRIMSHAW said that he had been brought up to consider a panel a portion of work ventilated by a split from (say) a main horse road, such air being carried, after having passed through the places by means of a crossing over the main horse road, into a return air course running parallel, or approximately parallel, with the horse road.

Mr. HIGSON said the difficulty lay in the Mines Regulation Act—not what they individually might think was a panel—and he thought the question had better be left with the Inspectors of mines, as they were the source from whence mine owners and managers derived all their knowledge on such points.

IMPROVED MINING ENGINE.



IMPROVED MINING ENGINE.

The design of the compact and substantial arrangement of mining engine, especially suited for exploratory works and small mines, is due to Mr. ALEXANDER SMITH, M.I.C.E., of Dudley, a mining engineer of much experience, and is now being manufactured by Messrs. R. GARRETT and SONS, of Leiston Works, Suffolk. In its construction special care has been taken to avoid the defects of antecedent arrangements, and it will not fail to be found a solid and self-contained, as well as a well-proportioned and good-looking piece of mechanism. These mining engines have double cylinders, link-motion reversing gear, clutch and lever for disengaging pinion, and powerful foot brake, the levers for all the movements being easily within the reach of the driver. They can be supplied independently of the steam generator, or in conjunction with boilers of either the vertical or the locomotive type.

The engine is fitted with a pair of 6 in. cylinders, having a stroke of 12 in.; the diameter of the winding drum is 3 ft.; the proportion of the gearing is as 7 to 1, with 2 in. pitch and 5 in. width on face of cogs. The velocity of the rope at 150 revolutions of the crank-shaft is 200 ft. per minute. The drum is capable of containing 300 yards of 24 in. steel wire rope, calculated for a working load of 36 cwt., which are well within the capacity of the other details. The side frames serve at once as bearings for the windlass and the crank-shaft of the engine—a very rigid and substantial arrangement—and are bolted down to the bottom foundation plate, which is constructed to serve also as a receptacle for the feed water, and contains the feed pump for the boiler, driven by an eccentric on the crank-shaft.

The boiler is of the vertical cross tubular type, 9 ft. 3 in. in height, and 4 ft. in diameter, with a neatly corrugated machine flanged top-plate; it has two cross tubes 10 in. in diameter. The fire-box is "set back" to the shell of the boiler, forming its own water space, and the fire-hole is dished back to meet the shell. It is intended for a working pressure of 75 lbs. on the square inch; heating surface, 900; grate area, 90.

BORING OR DRILLING ROCK.—For the purpose of supporting the boring rod or drill bar and guiding and steadying the drill, Mr. T. B. DOWDRA, of Ball's Pond-road, provides the boring rod or drill bar, and in some cases also the core tube and after part of the crown, with tubular bearings or guides provided with adjustable springs arranged to bear against the sides of the hole, and which springs may in some cases be furnished with anti-friction wheels or rollers. The boring rod or drill bar is free to rotate in the bearings or guides, endwise movement of which along the boring rod or drill bar may be prevented by collars or stops on the latter. Provision is made for lubricating the tubular bearings or guides. It is claimed that the invention facilitates the controlling of the direction of the drill or cutter, so that it may not depart materially from the course of which it may be required to drill the hole.

MANUFACTURE OF IRON AND STEEL.—Some further improvements in his inventions of the last five years have recently been patented by Mr. S. R. SMYTH, of Manchester. In the first place he proposes to use coal gas or carbonic oxide instead of atmospheric air as the carrier for his dusts, and the other part of his invention consists in the application of various dry dust compounds, which may be employed either separately or in conjunction with the liquid processes, and also applied to the various metal receivers, converters, furnaces, &c., herein named, and are either carried forward by atmospheric air or by the gases before named, the result of their application being the same as before described for the liquid processes. The dry dust compounds are stored in upright cylindrical hoppers having taper bottoms, and are made either of cast or of wrought iron having covers on their tops and a simple throttle valve at their bottoms, which is worked by an upright lever, so that the dry dust compounds

may fall into a pipe below the same, and thence carried forward either by the air or by the gases into the metal held in the various apparatus hereinbefore described.

COAL BRIQUETTES.—Messrs. Cory and Yeo, Compagnie Houillère de Graigola Merthyr, Swansea, write—We observed in the Times a paragraph stating that the system of utilising small coal for the manufacture of compressed fuel or briquettes is about to be introduced as an experiment into the Durham coal trade; and it is added that the system, though long known in France, has not up to the present been largely adopted in England. Will you permit us to say that the manufacture of briquettes has been carried on in Swansea on a large scale for more than 20 years, and that the annual production of this company is upwards of 200,000 tons.

COAL BRIQUETTES.—Mr. Samuel Butler, of Cardiff, writes:—Respecting the manufacture of patent fuel, I notice in the Times a paragraph stating that its manufacture is about to be introduced into the Durham coal trade, and that, though long known in France, it has not up to the present been largely adopted in this country. I think we cannot fairly allow France to take credit in this exclusive manner for the founding of an industry which, having been successfully worked in South Wales for the past 35 years has now grown to become one of its most important exports. As many processes have been followed for the manufacture of patent fuel, I would say that the fuel now universally used for locomotion and navigation is a mixture of coal and coal tar pitch. For working these ingredients Mr. Henry Walker Wood erected works at Port Talbot in 1844, and was granted a patent which effected practical results. In 1857 he selected Cardiff as being a most eligible situation, and down to the present day the concern has had a successful career, and is now known as the Crown Preserved Coal Company. In later years other works have been erected in this neighbourhood, and the total productive power at the present time is about 500,000 tons annually.

THE NEW MEXICAN MINES.—Mr. Sutton, United States consul at Matamoros, in his despatch to the Department of State, dated Sept. 27, gives some information concerning the newly-discovered silver and gold mines in Mexico. These marvellously rich mines are located in the Sierra Majada range, about 600 miles west of Matamoros, and are very inaccessible. The great distance, the terrible roads, and the danger from the Indians in the mountains make it a hazardous journey to reach them. The chances of getting the money there and of getting it out of the country are, of course, very doubtful. The advice of the consul is to wait six months before attempting to go to the mines. By that time some definite knowledge on the subject will be obtained.

SALE OF A SARDINIAN SILVER MINE.—At Mr. Dowell's sale-rooms, Edinburgh, last week, the Gibbas Silver Lead Mine, in the Island of Sardinia, with the machinery and plant thereon, was sold for the reduced upset price of 5000.

SALE OF THE ELECTRIC LIGHTING COMPANY'S APPARATUS AND PLANT.—Mr. Statham Hobson, at his rooms in Chancery-lane, sold by auction, on Tuesday, the whole of the apparatus of the Electric Lighting Company (Wilde's patent), a considerable portion of which has recently been in operation at the South Kensington Museum, the Royal Polytechnic Institution, the Gaiety Theatre, and at Messrs. Latimer Clark, Muirhead, and Co.'s, Westminster. The company is in liquidation, and the sale took place by order of the official liquidator, showing that electric lighting has not yet become a commercial success. The property sold consisted of 44 lots, the first lot submitted being the company's interest in an agreement between Mr. Henry Wilde, of Manchester, the patentee, and the Electric Lighting Company, under which the company are entitled to a licence to use certain patents and to other benefits and privileges. For this lot there was no offer, and the sale of the other lots was proceeded with.

* Transactions of the Manchester Geological Society.

† Thus, for 10 straight places I would have a split of 10,000 cubic feet per minute and loose brattice.

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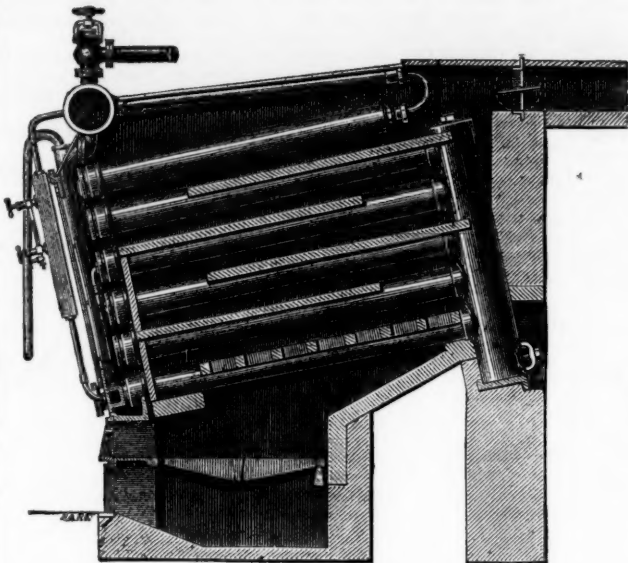
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MINING MADE EASY—POWER without DANGER.

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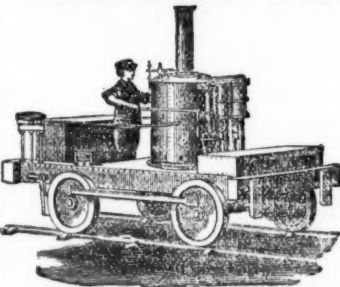
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REFERENCES: Wm. Lane Booker, Esq., H. B. Majesty's Consul, S. F.; the Honorable Leland Stanford, Ex-Governor of California and President of the Central Pacific Railroad, S. F.; the Right Rev. Wm. Ingraham Kip, D.D., LL.D., Bishop of California; the Rev. William Vaux, Senior Chaplain U.S.A., Santa Cruz, Cal.; the Anglo-Californian Bank, San Francisco, California; the Anglo-Californian Bank, No. 3, Angel-court, Throgmorton-street, London, E.C.

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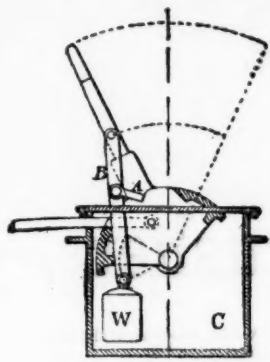
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The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

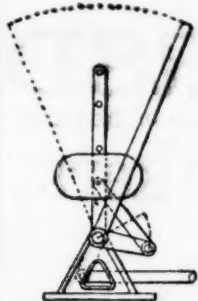
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SWITCHES AND CROSSINGS, FOR RAILWAYS AND TRAMWAYS, WITH PATENT LEVER BOXES.



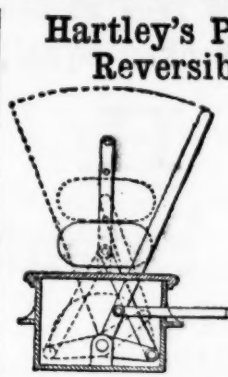
Hartley's Patent Lever Box,

REVERSIBLE UNDERGROUND.
Can be set to work either way; by turning over the catch at A and reversing the lever, the weight W swings over to C, the catch preventing its return until again turned over. The reversing is effected with very little power, as the weight is raised but a few inches in the operation.



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Specially designed for Colliery Workings, or where economy of space is an object. Is reversible, and can be locked either way, or dead-locked, so as not to work at all.



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Will set over both ways, can be locked so as to work on one side only, or the switches can be locked on either side, so as not to work at all. Takes up less room than any other, as the weight does not turn over; works equally well if full of water; can be supplied at the price of an ordinary lever box.

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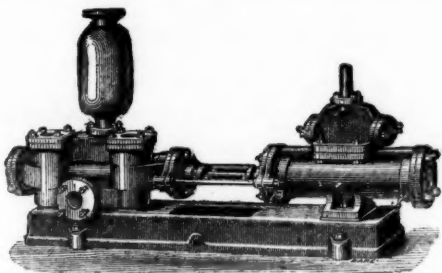
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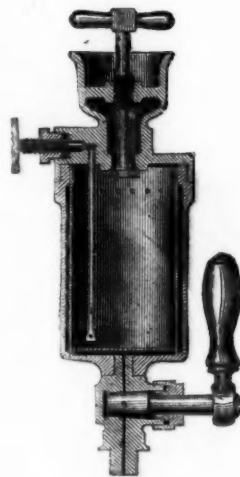
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4	2	18	1,260	19
4	4	18	5,040	25
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8	6	18	7,920	50
10	8	18	12,060	80

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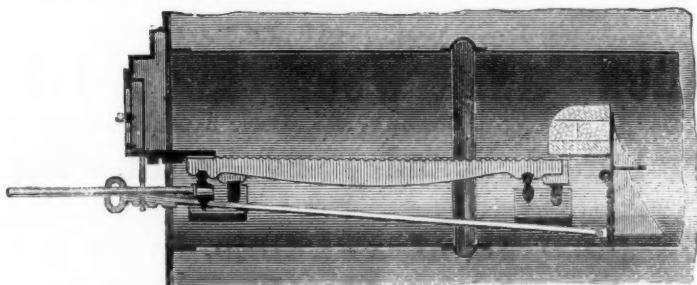
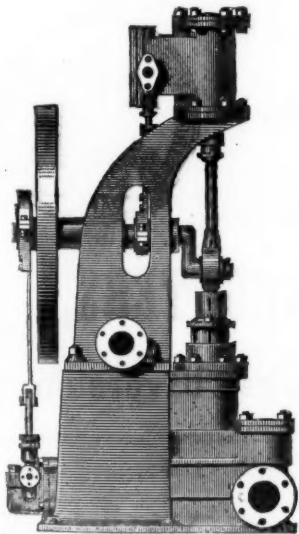
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Entirely Self-acting. Flow of Grease regulated
by the Steam. Perfect Lubrication.
Greatest possible Economy.

PATENT.



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TO SUIT ANY
FLUE
OR
FURNACE.
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PRICES
ON
APPLICATION.

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4	7 10	25 0
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7	30 50	47 6
8	50 70	60 0
9	70 100	85 0
10	100 200	110 0

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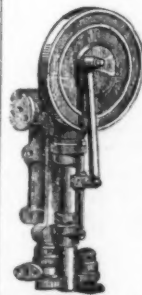
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ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

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FOR MY LATEST PATENTED STONE BREAKERS AND ORE CRUSHERS.

Stones broken equal, and Ores better, than by hand, at one-tenth the cost.

H. R. MARSDEN,

ORIGINAL PATENTEE AND SOLE MAKER OF BLAKE'S

Improved Patent Stone Breakers & Ore Crushers.

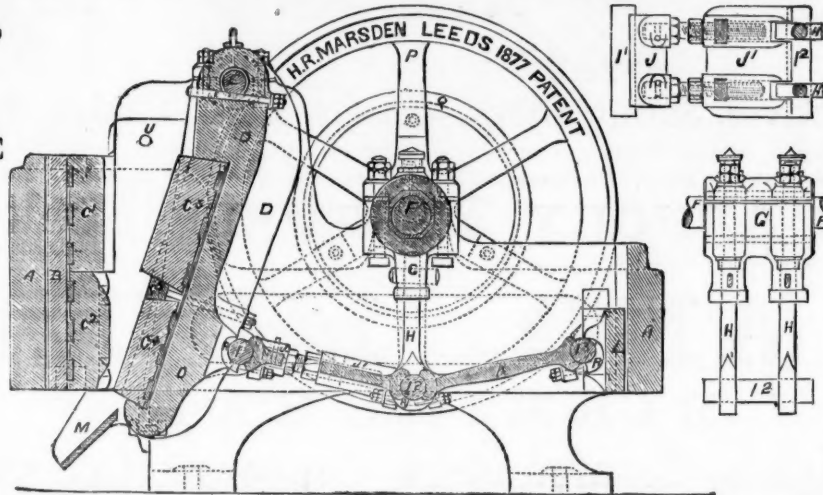
New Patent Reversible Jaws,
in Sections, with Patent
Faced Backs.

NEW PATENT ADJUSTABLE
TOGGLES.
OVER 2500 IN USE.

New Patent Draw-back
Motion.

NEW PATENT STEEL TOGGLE BEARINGS.

**70
PRIZE MEDALS.**



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Wharholme Lime Works, Maryport, Whitehaven,

November 7, 1873.

H. R. MARSDEN, Esq., Soho Foundry, Meadow-lane, Leeds.
DEAR SIR,—The machine I have in use is one of the large size, 24 in. by 12 in. The quantity we are breaking daily with this one machine is 250 tons, the jaw being set to break to a size of 2½ in. We have, however, frequently broken over 300 tons per day of ten hours, and on several occasions over 350 tons during the same period. The stone we break is the blue mountain limestone, and is used as a flux in the various ironworks in this district. We have now had this machine in daily use for over two years without repairs of any kind, and have never had occasion to complain of any inconvenience in using the machine. I hope the one you are now making for me may do its work equally well. The cost—including ENGINE-POWER, COALS, ENGINEMAN, FEEDING, and all EXPENSES OF EVERY KIND—is just 3d. per ton. Should any of your friends feel desirous of seeing one of your machines at work, I shall have much pleasure in showing the one alluded to.

I am, dear Sir, yours very truly,

WILLIAM MILLER.

AND THIS—

Wharholme Lime Works, Aspatria, Cumberland,

July 11th, 1878.

H. R. MARSDEN, Esq., Soho Foundry, Leeds.
DEAR SIR,—We are in receipt of your letter of 4th inst. I may just state that the stone breaker above named has been under my personal superintendence since its erection, and I have no hesitation in saying that it is as good now as it was five years ago.

I am, dear Sir, yours faithfully,

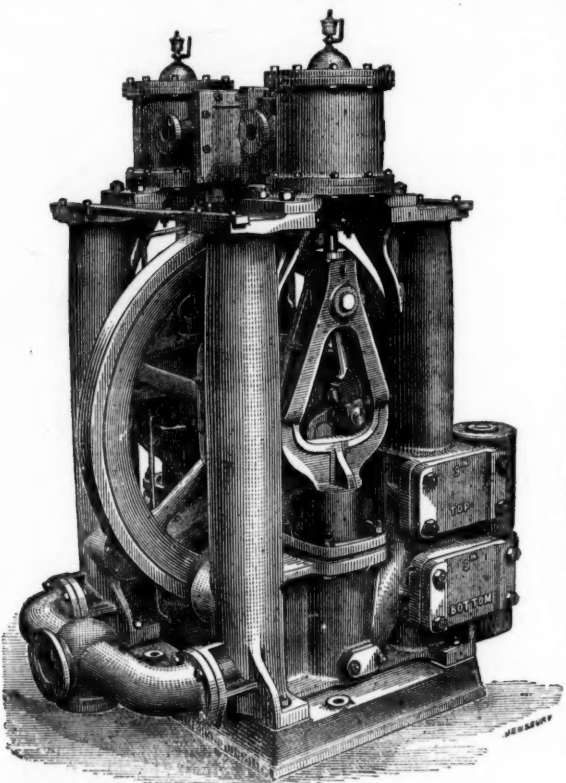
FRANCIS GOULD.

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CATALOGUES, TESTIMONIALS, &c.

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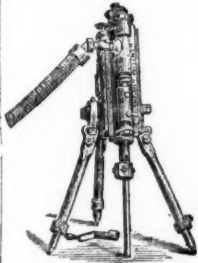
The largest and most widely circulated papers in Monmouthshire and South Wales. Chief Offices, NEWPORT, Mon.; and at CARDIFF.

The "Evening Telegram" is published Daily, the First Edition at 3 P.M.; the Second Edition at 5 P.M. On Friday, the "Telegram" is combined with the "South Wales Weekly Gazette," and Advertisements ordered for not less than Six Consecutive Insertions will be inserted at an Uniform Charge in both papers. P.O.O. and Cheques payable to HENRY RUSSELL EVANS, 14, Commercial-street, Newport, Monmouthshire.

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